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ABSTRACT

This is the second of three reports in a series of theoretical and empirical investigations of program evaluation. A questionnaire survey of 200 adult, technical training programs and their evaluations was conducted. This was followed up by site visits to 14 of them for indepth study. The 200 programs were divided equally among Department of Defense, other federal government agencies and departments, state and local governments and agencies, and private sector commercial, business, and industrial organizations. Great diversity of programs was noted. Most evaluations involved questionnaires and interviews of program participants to obtain data to improve the program. Fully a quarter of the evaluations were unplanned and of poor quality. The exemplary evaluations subject to site visits were uneven in quality too. The survey was useful in isolating areas of concern that have subsequently become the subject of other phases of the series of studies on program evaluation. (Author/RC)

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PRACTICES IN PROGRAM EVALUATION:

A SURVEY AND SOME CASE STUDIES

Samuel Ball

Scarvia B. Anderson

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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This is the second of three reports in a series of theoretical and empirical investigations of program evaluation. A questionnaire survey of 200 adult, technical training programs and their evaluations was conducted. This was followed up by site visits to 14 of them for in-depth study.

The 200 programs were divided equally among Department of Defense, other federal government departments and agencies, state and local governments

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Abstract (continued)

and agencies, and private sector commerical, business, and industrial organizations. Great diversity of programs was noted. Most evaluations involved questionnaires and interviews of program participants to obtain data to improve the program. Fully a quarter of the evaluations were unplanned and of poor quality. The exemplary evaluations subject to site visits were uneven in quality too. The survey was useful in isolating areas of concern that have subsequently become the subject of the third and fourth phases of the ETS/ONR series of studies on program evaluation (see Technical Report #3).

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I. INTRODUCTION

In 1972, Educational Testing Service under contract with the Office of Naval Research, Personnel and Training Research Program, began work on the first phase of a concerted series to study and improve theory and practice of training/education program evaluation. The first phase culminated in a book, published by Jossey-Bass entitled Encyclopedia of Educational Evaluation. This book presented in relatively non-technical language major concepts and practices in the evaluation of training or educational programs. Its intended audiences included naval personnel who commissioned or conducted such evaluations. In the first six months following its publication, more than 6,000 copies of the book were sold. It is now in its third printing.

Two more phases of the project were subsequently carried out after the completion of phase one. The second phase of the project is reported here. It is a survey of actual evaluation practices in various kinds of settings involving adult education/training programs; and its rationale, methodology, results, and conclusions will be reported in detail below.

The third phase of the project, presented as a separate report,* is a codification of evaluation principles and a framework for appropriate evaluation practices. That is, among other purposes, the third phase provides, for evaluators and those commissioning evaluations, checklists and tabular presentations enabling a systematic approach to evaluation to be taken.

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*See Ball, S. and Anderson, S. B., Professional issues in the evaluation of education/training programs. Technical Report No. 3 for Contract No. N00014-72-C-9433, NR 154-357. October, 1975.

However, the topics addressed in phase three, while partly based on the opinions expressed by a distinguished panel brought together at Educational Testing Service, were also based on problems exposed by this survey.

While the rationale for this survey included providing data for the third phase of the project, other important functions were also served in their own right. One was to obtain new knowledge. There has never been a survey of evaluation practices across a broad spectrum of adult education/ training programs; and the state of the evaluation art as presented in the Encyclopedia of Educational Evaluation is of little consequence if it is not in fact practiced in that form.

By analogy we might look at the field of medicine. We would conclude that there is a missing gap in the application of our medical knowledge if patients suffering a particular disease typically succumb to it even though professors of medicine know how to treat it successfully. Perhaps these professors are not communicating their knowledge properly; perhaps the "front line" medical doctors are not alert to new ideas; or perhaps there are problems of a contextual kind (administrative arrangements, financial difficulties) that preclude the application of what is known to what is done.

In program evaluation we have accumulated expertise, techniques, and insights, that ought to be useful if properly applied. Program evaluators should be able to do so if they are adequately trained and the environment in which they work is conducive to their carrying out their professional mission. But do they?

A related question is whether in evaluating programs, a wide spectrum of evaluation models is employed or whether the rather traditional summative-type evaluation is primarily involved.

The major question for this survey remains: What are the actual practices in program evaluation in different settings? This was the question that motivated the activities to be reported.

To answer this question two related research activities were undertaken. First a survey of some 200 adult education/training programs was carried out. Then 15 of them were chosen as exemplary and became the subject of a site visit a[illegible]dy. The procedures, results, and conclusions are presented in [illegible]wing sections of this report.

II. PROCEDURES

In this section of the report the sampling, the instrumentation, and the data collection procedure will be described in detail.

A. Sampling Procedures

A sampling procedure cannot be rationally determined without some prior consideration of the population about which we wish to generalize. The proposal for this study had stipulated adult, technical education/training programs as the area of interest and the evaluations of these programs as the focus of investigation. Preliminary efforts to obtain a census of these programs from which to draw a called for sample of 200 programs not only proved to be fruitless but also pointed up the need for further elaborations of the population. The major problem was that different degrees of technical sophistication and systematization existed among different adult technical training programs depending largely on their source of funding and authority.

Four major groupings of adult technical training programs were discerned.

a) Those provided by the Department of Defense through the Army, Navy, Air Force, and Marines.

b) Those provided by federal government departments and agencies other than the Department of Defense.

c) Those provided by state and local government agencies, usually, as we found out, through junior/community colleges.

d) Those provided by the private sector of the economy by industrial/commercial organizations for employees and potential employees.

For only one of these four categories were we able to obtain a complete program listing. It was possible to obtain a listing of all technical programs provided by the Department of Defense. The listing was voluminous running in all to thousands of specific courses. However, the other three groupings had no such listing. It seemed possible that their offerings were as vast as that of the Department of Defense--especially those provided by state and local governments and agencies [see c) above]. Unfortunately, there was no single locus of information. Each agency, each junior college, each commercial organization had its own listing but the number of agencies, organizations, and colleges was so great as to preclude our establishing an overall population frame.

As well as the problem of establishing a population frame, there was the technical problem of deciding on a sampling technique. We had already indicated that a cluster sampling approach was used; and 50 programs from each of the four groupings of programs listed above, were selected.

Because there was no population frame in three of the four groupings and because the survey was essentially exploratory, it was neither essential nor possible to obtain a fully randomized sample. The decision was to develop within each cluster a large pool of programs that had preferred characteristics. Then we would randomly sample 50 programs within each of those four pools.

*See, for example: 1. Catalog of Navy Training Courses (CANTRAC), NAVTRA 10500, Naval Training Command. July, 1973.
2. U. S. Army Formal Schools Catalog, D.A. Pamphlet 350-10. Variously dated from February, 1965 to February, 1973.

The major criteria for placement of a program into a pool was that it be currently offered to adults,* that it be technical in content (enrichment, cultural, and general educational courses did not qualify), and that it be first available within the past five years** (if dates could be ascertained). Where vast numbers of programs were readily available for selection there was no problem in getting a cross-section. Thus, in the case of Department of Defense programs, a cross-section of the four armed forces was called for. Also in the case of the Department of Defense, programs involving security qualifications were not included. The obtaining of a pool of programs from federal government departments and agencies was carried out by calling departments and agencies randomly selected from a full listing until the requisite number of programs was obtained. For obtaining a pool of state and local government initiated programs, ten states were randomly selected. Then county and/or local government agencies were contacted as well as state departments and agencies within those states until the requisite number of programs was obtained. Industrial/commerical programs were obtained by randomly selecting from within the top 500 corporations and making enquiries until the requisite number of programs was obtained (no more than one per corporation).

To save time and cost, all initial contacts were made by telephone.*** Each pool contained 200 programs from which an initial 50 were randomly selected. A second group of 50 was also selected to serve as replacements. Thus, at the end of the sampling process there was a listing for each of the four program categories (Department of Defense, etc.) of 50 programs and a back-up listing of 50 programs.

*Persons over 17 years of age was the definition of adult.

**The preference was for recently developed programs because they would more likely have had some form of evaluation and we were interested in obtaining a current picture of evaluation practices.

***There was subsequently a follow-up letter. (See Appendix B)

The actual data gathering process is described below in Section C. The sampling process described here and used in this survey ensured that a wide range and variety of programs were selected encompassing all major geographic areas of the United States and encompassing all major sources of adult technical training outside the conventional university and college baccalaureate and higher degree programs.

A second part of the study called for a closer investigation of 15 exemplary program evaluations to take place after the initial survey. The 15 were chosen by a subjective process after the project staff had scrutinized the survey responses. Again, selection was broken down to insure that each of our four major categories of programs had at least three case study visits and to make sure adequate geographic representation was maintained overall.

B. Instrumentation

In order to focus on what we deemed specific areas of importance, we queried responsible program personnel using the questionnaire which appears in Appendix A. Its first part sought information about the program. There were 18 questions concerning the program's goals, target audience, length, level, instructional methodology, and student evaluation practices. The second part of the questionnaire contained questions seeking detailed data on program evaluation activities. There were 30 questions concerning formal or informal, formative or summative evaluation activities including questions on the source of the evaluation funding, the extent and depth of the evaluation, the measures and evaluation design, the kinds of analyses used, and the type of reporting carried out.

As well, for the 15 program evaluations chosen for more intensive study, an open-ended set of 14 topics to be covered was developed. These were:

1. What is the program like? (Audience size, initiator, student body, serving population, length, goals, how students are evaluated.)
2. What kind of evaluation(s) were carried out? (What model, what were the evaluation's goals? What were its values?)
3. Who carried it out? (Why the evaluator was selected, qualifications, experience, in- or out-house, etc.)
4. Who paid for the evaluation? (How, under what circumstances, etc.)
5. Who were the audiences of the evaluation? (Program funders, developers, potential students, etc.)
6. What were the expected outcomes and benefits of the evaluation? (If you can find out directly or by inference.)
7. What did the evaluation(s) comprise of? (Describe the evaluation(s) briefly. Processes and conclusions.)
8. Was the evaluation carried out with technical competence? If not, what went wrong? (Look especially at variables, measures, design.)
9. Did the evaluation(s) accomplish the evaluation goals? (In whose opinion?
10. Did the evaluation seem to help the audience for whom it was intended? Were any changes made as a result of the evaluation?
11. Did the evaluation look for unintended outcomes (program side effects)?
12. What was good about the evaluation(s)? Was there anything quite noteworthy?

13. What were problems with the evaluation(s)? How could they have been overcome? (In whose opinion? Try to get different viewpoints.)

14. Are there special lessons to be learned from studying this evaluation? (Be general.)

C. Data Collection Procedure

In the first section of this chapter (Section A) the sampling procedure was described in detail. The data collection began with a sample of 200 programs divided equally among our four categories. There was, as well, a similar back-up set of 200 programs. The reason for this second set of programs can be understood by reference to the focus of the survey. While adult, technical training programs was the area of concern, their evaluations were the focus of the survey. A program which had no formal or informal evaluation of any kind (broadly defined) was not used in the actual survey and a replacement from the back-up set was obtained.

The data collection process began with a letter to the director or person in charge of the program (see Appendix C). A week after the letter was sent, a telephone call was made to determine whether the program had been the subject of any kind of evaluation (formal or informal, past or present). If the program director indicated that no evaluation existed, the program was dropped from the study and a program from the back-up list was substituted. In this manner, 200 programs with some form of evaluation were available for further use in the survey. A first empirical indication of the heterogeneity of the four categories can be seen from their acceptance rates:

. . .Almost all (90 percent) Department of Defense and private sector programs were reported to have some form of evaluation.

. . .It was difficult to obtain this information for other federal government programs because with many there was a heavy degree of decentralization. An adult, technical training program, ostensibly administered by a Washington, D.C. project monitor might actually be run in a number of centers each having some autonomy with respect to such questions as evaluation. An acceptance rate of 72 percent probably provides an underestimate of the amount of evaluation occurring with federal government adult technical training programs.

. . .State and local governments and agencies represented the lowest acceptance level. Less than half of the initial listing (46 percent) indicated the presence of some form of evaluation and all but two of the back-up listing of programs had to be used to obtain the required number of 50 programs with some form of evaluation.

Given the final listing of 200 programs with evaluations (50 per category), it was now possible to go ahead with the major data collection.

The original intention for the data collection was that it be carried out by telephone interview. However, pre-survey, pilot work in the data collection procedure indicated that this would not prove satisfactory. Some of the programs had multiple staffing, so that while one member of the staff was best qualified to answer questions about the program, other members of staff were best qualified to answer questions about the program's evaluation. As well, at least some of the questions required searching of records or time for consideration of the best response. Therefore, a different approach was taken, the telephone interview technique being dropped and a mailed questionnaire substituted. Two telephone follow-up calls were used, if needed.

The case studies were conducted after the questionnaire survey was completed. As was indicated above under Sampling, the programs selected for further study were subjectively chosen for their exemplary evaluations. Some objective criteria based on the questionnaire responses were used in reaching that judgment. A program's evaluation was deemed exemplary if it was formally conducted, had some level of statistical analysis performed on data generated by the evaluation, and had been instrumental in improving programs. In two instances exceptions were made. In one instance, the questionnaire response seemed to suggest an innovative evaluation had been performed and, in the other instance, an evaluation (while informal and pedestrian) was representative of others in that category of programs.

III. RESULTS

A. The Questionnaire Survey

In the first two chapters of this report the rationale and procedures of this study were presented. In order to find out what practices are occurring with respect to the evaluation of adult, technical education/ training programs, 200 programs (50 in each of four categories) were surveyed using a mailed questionnaire. It had already been established that these programs had been subject to some form of evaluation.

An overall response rate to the mailed questionnaires of 70 percent was achieved. After two telephone call-backs, 142 of the questionnaires had been returned. The response rate for each of the four categories of programs was:

. . .Department of Defense (84 percent return)

. . .Other federal government departments and agencies (66 percent return)

. . .Private business and industry (80 percent return)

. . .State and local government departments and agencies (54 percent return)

This response rate corresponds rather closely to data presented earlier in this report on the presence of evaluational processes in adult, technical training programs. It was seen in the data on the presence of some form of evaluation (Section C of Chapter III) that Department of Defense programs had the highest proportion of programs with evaluations and State and local government departments and agencies the lowest. It may be seen that responses to mailed questionnaires were also similarly ranked. A possible reason for this is that the former grouping being more likely to have evaluated their programs was also more inclined to answer questions about them.

A follow-up to determine causes of failures to respond was conducted. Twenty-one of the 58 non-respondents (36.2 percent) were telephoned and

reasons for non-response requested. The reasons provided were:

. . .Overlooked--will return it soon (4)

. . .Never received it (3)

. . .Did return it--must have been lost in mail (3)

. . .Been too busy (3)

. . .Sent it on to colleague/assistant to fill in--didn't get it back (2)

. . .Questionnaire too general or too awesome (2)

. . .Been ill or on maternity leave (2)

. . .Cannot recall what happened (1)

. . .Person to whom sent no longer employed there (1)

It would seem that the 29 percent non-response rate was not caused by systematic factors related to the nature or style of the questionnaire.

The data from the 142 questionnaires were processed. The major analyses called for were frequency counts and percentages for each response category in each of the questionnaire items. These analyses were conducted for all 142 respondent questionnaires overall and separately by each of the four program categories--Department of Defense (D.O.D.), Other Federal Government Departments and Agencies (O.F.D.), State and Local Government Departments and Agencies* (S.& L.), and Private Business, Commerce, and Industrial Organizations (Industry). The results are so presented in Tables 1-5 at the end of this chapter.

When studying these tables it is important to bear in mind the nature of the respondent sample. The programs that are described (see Table 1) are adult, technical training programs that initial enquiries indicated had been subjected to evaluation. Therefore, the results in this

*Many of these programs are conducted by junior and community colleges.

study refer to such programs and not to adult training programs in general. Furthermore, in considering the information about evaluation practices, it should be noted that there are many programs that do not have any form of evaluation. Evaluated training programs in relation to all programs probably range from a minority in the case of state and local government departments and agencies to about 90 percent in the case of Department of Defense programs. (See Chapter II, Section C.)

With this understanding of the nature of the sample in mind, it is appropriate to consider Tables 1-5.

Table 1 provides a description of the 142 programs from which the evaluation data in succeeding tables are based. It may be noted that:

. . .The majority of the programs, as called for in the sampling, were initiated since 1968 (72.4 percent). The major source of variance was with the state and local gropu (mainly the junior/community college programs) where 38.7 percent of respondent programs had begun before 1969.

. . .The median number of students trained in these programs was between 150 and 199. The arithmetic mean was considerably higher because of the skewed distribution. About 20 percent of the programs had each trained over a thousand students.

. . .The successful completion rate for trainees is typically over 80 percent. However, 17 of the 142 programs reported that less than 50 percent of the trainees complete the program successfully. State and local and private commercial and industrial programs accounted for 14 of these 17 programs. Heavy attrition rates seem to be very rare with Federal Government (including Department of Defense) programs.

. . .Repeating of programs (QA2b. and QA2b2.) is possible in about a quarter of the programs. But it seems that few students avail themselves of this opportunity.

. . .A third of the programs are offered in more than one location. Of that third, almost three quarters were in many (more than four) centers. The exception was in state and local government programs (mainly in junior/community colleges) where the large majority of programs were presented at a single site.

. . .Most of the state and local programs (56.7 percent) are accredited by some board or agency. However, only half the Department of Defense, 25 percent of the private, commercial/industrial and 18 percent of the other federal department programs are accredited.

. . .There is, similarly, considerable variation with respect to the payment of fees by students--from less than five percent with Department of Defense programs to 73.1 percent with state and local government and agency programs.

. . .Almost all of the programs (94.4 percent) have a written statement of goals. Most (76.6 percent) have goals written in behavioral terms.

. . .Formal prerequisites for trainees (QA9.) are not usually required for federal government programs but are for most of the other programs. Only with state and local government programs does the prerequisite involve some educational level of attainment (probably the junior/community college influence). (See QA10.) For the other three categories of programs the prerequisite involved some previous course or skill acquisition.

. . .Most programs are of less than four months duration.(QA11.). Again the exception of the state and local governments category of programs is due to their being administered through junior/community colleges. The number of hours of outside classroom work (QA13.) varies greatly from less than 10 hours (31.9 percent) to more than 160 hours (23.9 percent).

. . .Methods of instruction are varied and many (QA14.). Most frequently mentioned were formal classroom teaching, practical laboratory/workshop experience, and multimedia usage. However, the question asking the respondent to indicate the most important method of instruction achieved consensus with only formal classroom teaching and practical laboratory/workshop experience receiving more than ten percent endorsement.

. . .The final series of questions concerning the programs themselves enquired about student evaluation. In the majority of programs (78.0 percent) students are formally evaluated (QA16.). As one might hope with adult, technical training programs, the kind of formal student evaluation carried out (QA18.) frequently includes performance (practical proficiency) examinations (54.2 percent) and instructor ratings of performance or products (46.5 percent). Performance (practical proficiency) examinations were most frequently reported as the "most important element" in the student evaluation.

In general, Table 1 provides a clear illustration of the quite large diversity among groups of adult, technical training programs, depending in part upon their source of funding and authority. For example, most Department of Defense programs are formally evaluated,

have low attrition rates, and do not charge student fees. However, state and locally sponsored programs often have no evaluation component, frequently charge student fees, are usually available at only one site, and may involve heavy student attrition rates. A more comprehensive feeling for the diversity of the programs being considered here is provided in Section B of this chapter when in-depth case studies of programs are presented.

Of course, the reason for describing the programs is primarily to provide a backdrop against which to understand what is occurring on the stage of program evaluation. Table 2 presents information on the number and percentage of the respondent programs that have been subject to formal evaluation. (Formal was defined as some conscious, planned effort to provide an evaluation. Level of evaluation sophisitication was not a factor in this definition.)

Overall, 69.0 percent of the programs had been formally evaluated for the purpose of improving the program (18.3 percent), assess the impact of the program (2.1 percent), or for both these reasons (48.6 percent). Note that program improvement predominated over program impact assessment as a justification for the evaluation.

Table 3 provides information on the formal evaluations of the respondent programs. The descriptive statistics are presented separately for the improvement and the impact elements of the evaluations. From Table 3 it can be seen that:

. . .Program administration and the program's educational staff were primarily responsible for calling for the evaluation. Outside agencies and other factors have little influence except in the case

of the Department of Defense programs where, as we shall see later in the case studies (Section B of this chapter), there is likely to be an evaluation process mandated by regulations.

. . .The evaluation is usually carried out by "insiders"--program administrators, developers, or educational staff. Again an exception is the Department of Defense where specializations and division of labor not infrequently provides for external evaluation.

. . .Internal funding of evaluations (see QB5.) is the rule across all categories.

. . .Almost all the evaluations reported quite recent evaluations (past two years). The length of the evaluation ranges widely from less than a week to over one year. Note that 41.9 percent indicated a continual evaluation process. The continual process is especially apparent with Department of Defense and other federal government programs. It is also more likely to be adopted for improvement than for impact purposes.

. . .The focus of measurement was most frequently the students and the curriculum (QB10.) and the measurement techniques used were most frequently interviews and questionnaires or observation scales (QB11.). Program evaluation using standardized or teacher made tests was relatively infrequent. This suggests that formal program evaluations, as currently performed, are relatively unlikely to be concerned with program effects on trainees assessed by the trainees' performance on paper and pencil tests.

. . .The reliability and validity of the measures does not seem to be a major concern overall. In less than 50 percent of the cases were they assessed.

. . .The measures that were used in the evaluations primarily assessed program goal areas and only secondarily assessed potential side-effects. A slight difference concerning side-effects measures can be noted between improvement studies (39.1 percent included such measures) and impact studies (50.7 percent included such studies).

. . .Most of the evaluation designs eschewed the use of the true experiment or quasi-experiment. The picture that emerges is that the typical program evaluation is an observational (survey) study using questionnaires and interviews but not using statistical analyses (see QB18.).

. . .About half the evaluations produced a written report (QB20.) but when we asked could we have a copy only ten positive responses were received (improvement studies) and nine positive responses (impact studies). Even assuming that, for some programs, confidentiality requirements precluded our being offered a copy of the evaluation report, their relative unavailability evokes some suspicion about their finished quality.

. . .One pleasant feature of the responses was the rather frequent claim (81.3 percent) that the evaluation promoted program changes. Even with impact studies, 60.6 percent claimed they were change-inducing.

In general, Table 3 indicates that formal evaluations of adult, technical training education programs typically involve questionnaires and/or interviews of trainees and teachers. They study mainly intended goal areas of the program. They are usually called for, funded, and carried out by insiders rather than agencies external to the program. Most evaluations seem to engender program change; but few seem to result in an available written report.

The final section of the questionnaire on program evaluations dealt with evaluations deemed to be informal. This group of evaluations constituted 41 of the 142 program evaluations studied indicating that even when programs have evaluations, about one-quarter of them are of the unplanned variety. The specific tallies showing the purpose to which these informal evaluations are put are presented in Table 4. Note that,as for formal evaluations, program improvement predominates over program impact as the major purpose.

Table 5 presents further information about the 41 informal evaluations. Where the purpose was primarily improvement, instructors and administrators carry out the evaluation. This is also true of the impact studies except that there a higher proportion of the cases indicated the presence of some third party. Presumably, impact studies call for a greater degree of objectivity than improvement studies, and this objectivity is evidenced by the use of a person or agency other than the program's instructors or administrators.

The other question put to respondents concerning informal evaluations asked what information was used to guide subsequent program improvement. (Note that only one of the 41 informal evaluations did not have program improvement as a purpose.) Of the 40 responses to this question almost all (92.5 percent) mentioned instructors' judgments, 70.0 percent mentioned students' judgments, and 62.5 percent mentioned the judgments of other observers such as administrators. That is, informal, unplanned evaluations, probably perforce, rely heavily on the judgments of the major program participants in effecting program improvement.

Questions concerning informal evaluations were purposely kept few. Informal evaluations represent the twilight between the daylight of planned program evaluation and the darkness of no evaluation. True to expectation these unplanned, informal evaluations were carried out mainly by program staff assessing the judgments of program staff presumably in simple ways. To generalize from our sample, this unsophisticated approach probably represents about a quarter of all program evaluations.

B. The Site Visits

As well as the data obtained from the 142 questionnaire respondents, the study called for a more in-depth investigation of a small group of 15 programs with exemplary evaluations. The criteria for selecting these programs have been presented in Section C, Chapter II.

The ETS staff who made the site visits were given a set of 14 major questions to be answered in their site visit reports. These questions have been presented in Section B, Chapter II.

Fourteen of the 15 site visits were conducted approximately on schedule. The subsequent reports were edited to retain anonymity of persons and programs and abridged* to conserve space. The edited, abridged versions are presented in Appendix D.

One of the 15 site visits was never completed. An initial visit to set up the "case study" took place. But subsequently, there was a long series of postponements due to illness, vacation, company reorganization, busy schedules, and eventually, as we understand it, the termination of the contact person's employment with that company. The decision was made at that late stage not to draw a new program site for study.

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*For example, accompanying reports and forms were excluded.

Appendix D provides a data base that indicates the variability of the 14 programs and of their evaluations. (Incidentally, it also indicates the variability of the site visitors--a factor to be expected in case study reports.) We shall here provide a summary of the major results of the site visits by posing the questions the ETS site visitors had in mind as they interviewed the program personnel.

What is the program like?

The major impression in looking over the case studies is one of great program diversity. This can perhaps best be shown by naming and briefly describing the programs in their order of representation in Appendix D.

1. A drug abuse education specialist course--a sophisticated program to help solve a complex problem by developing a cadre of specialists with an intensive understanding of drug problems (and their etiology) and social skills to work with drug addicts.
2. A digital subscriber terminal equipment repair course provided mainly for servicemen other than commissioned officers. Mostly "hands on" training is involved and 15-20 weeks of intensive work is typically the duration.
3. An air traffice controllers training program. Up to 1000 trainees per year are processed to meet FAA requirements. A high level of electronic aptitude is required of the enrollees.
4. A radar repair course of 25 weeks duration. The course is for enlisted servicemen. A very high level of electronic aptitude is required of the enrollees.

5. A management by objectives course for second level supervisors in a federal government agency. The course is of three days duration spaced over about a 30-day period.

6. Supervisory training - Phase 1 for a federal government department. A requirement for all new supervisors, the course covers two 40-hour blocks of time and attempts to teach skills of how to deal effectively with people.

7. A course on clear writing for personnel in a special federal government service. Attendance at the course ranges from 20 to 60.

8. Executive development program for professional employees of a federal government department with low management or supervisory experience. So far 120 trainees are in this new course.

9. Food and beverage management program for employees of a major motel chain. Class size is 35 and the trainees come from throughout the USA.

10. A sales fundamentals course conducted by the Division of Industrial Relations of a large corporation. The course is for sales personnel new to the company. About 75 trainees per year attend the course.

11. Managing the manufacturing operation is one of five autonomous units presented each quarter by the Education and Training Division of a large corporation. The course is for management level employees or those with the potential for work at this level.

12. Medical laboratory technician program carried out in a community college. A considerable amount of on-the-job training is involved in the program.

13. Environmental aide program run by a county area vocational education center to train assistants. The program provides experience so the trainees can be later employed in such occupational areas as sewage and water treatment, soil conservation, and air pollution control.

14. Plastics technology program offered at a technical institute which is part of a state vocational technical and adult education network.

Note that the programs range in scope from machinery repairs to higher level management, in length from a few days to two years, and in extent from a few students in one location to thousands of students in many locations.

The kind of evaluation? Who carried it out? Who paid for it?

The kind of program evaluation, as one might expect for a wide variety of programs, also varied widely. The first four case studies are of Department of Defense programs. There is a clear sense of a systematic approach to the program evaluations with considerable evaluation expertise being brought in by contracts to outside consultants as the consultants were needed. Note, for example, in Case Study #2, "Evaluation in the Army's schools,. . .is part of a comprehensive system. . .more formal, more regular, and institutionalized to a greater extent than efforts elsewhere described. . . ." Note, too, in Case Study #3, the availability of a Program Evaluation Division.

The other federal government program evaluation case studies (#5-#8) reveal a feeling of awareness of the value of evaluation but not the expertise to carry it out. It seems that in-house evaluation is typical.

Note, for example, in Case Study #7: "Evaluation of training is required by Civil Service regulations but no guidelines are given for the type or extent. . . .There is no separate budget for evaluation activities." Or as another example consider the statement in Case Study #8: "For such a carefully planned and documented program with a great deal of emphasis on evaluation feedback to participants, there is surprisingly little planning or execution of a program evaluation."

The evaluators for the programs conducted by private corporations (commerce, business, and industry) imbued us with even less confidence. In at least one case the program evaluation was primarily a political exercise. Consider as a program evaluation goal: "To show my boss how good the program is."

State and local government and agency program evaluations seemed to vary depending on whether the programs were conducted in junior/community colleges or not. We draw a little upon previous experience and the questionnaire survey for this statement. However, the case studies provided a good illustration. The community college program was evaluated in a rather traditional college way primarily by self-study. When the programs were conducted by vocational and technical institutions, a more sophisticated approach was used.

Who were the audiences of the evaluation? What were the expected outcomes and benefits? Technical Competence? Evaluation goals accomplished? Help the audience for whom intended?

It makes sense in providing a summary of the case studies to combine these questions (#5 to #10 in Section B, Chapter II) for they integrate the major evaluation processes from planning to dissemination.

Again the pattern noted before continues to operate. Department of Defense program evaluations seem to be the most systematically planned and their results disseminated. Audiences were program staff and officers in charge; the major benefits expected were improved curriculum and teaching methods.

These terse remarks hardly mine the rich lode of comments and descriptions to be found on the four Department of Defense case studies. However, many of these remarks are not generalizable across programs. For example, the fourth case study points to a problem created by a different staff group working on the evaluation than is involved in the program. But the resulting relative lack of coordination in the use of evaluation results is not a problem noted in the other three case studies.

Other federal government program evaluations, as presented in their case studies, are less systematically planned and executed.* However, at least in case studies #5 and #6 there was evidence that an unsophisticated approach to evaluation did not prevent the results beneficially influencing the programs. With case studies #7 and #8, monitoring and staying within guidelines and regulations seemed to be two major evaluation functions and these were not conducive to having substantial influence on program improvement.

The evaluations of private commercial/business/industrial programs seemed to be quite varied ranging from something resembling a caricature of an evaluation to something resembling a well-finished portrait. The reader is invited to find the proper recipient of these labels. The same wide variation in quality may be noted in the state and local government

*This was true from an examination of the survey results too.

program evaluations. Studies #13 and #14 provide illustrations of thoughtful evaluation planning and the establishment by controlling agencies of sensible guidelines.

What was noteworthy about the evaluations? Were there problems? Could they have been overcome? Are there any special lessons to be learned from studying this evaluation?

It is not possible, though it would literally be fabulous, to pull together 14 diverse case studies and come up with the moral for program evaluation. The best we can do in these circumstances is to list what seem to be the most important lessons and comments and then look for some common elements.

. . .Innovative and developmental programs probably need less restricted evaluation designs and models.

. . .Evaluations, regardless of model or design, constantly interact with the nature of the personnel who are being assessed, receive the reports, or must make decisions.

. . .Needs analysis prior to program development continues to be an often ignored aspect of the evaluation process.

. . .The program staff becomes more open and cooperative when they find the evaluation will be useful to them.

. . .Even when inferential statistical analyses are missing, very useful evaluation outcomes occur. (This thought was repeated more than once.)

. . .Training programs lend themselves to evaluation that can be characterized as systematic and where words such as "feedback" and "performance criteria" apply. Education programs, on the other hand, are more general in scope and, therefore, more difficult to evaluate.

. . .When evaluators also know the subject matter of the program their credibility with program people rises.

. . .If the audience for whom the evaluation is intended does not feel that the evaluation is important, little use will be made of the findings.

. . .Outcomes from learning opportunities for managers are difficult to document. Managers return to a great variety of tasks unlike people who are being trained, say, to repair dishwashers.

. . .It is unfortunate that a program that gives such attention to its training materials gives such scant attention to its evaluation. (This thought was also echoed in another case study.)

. . .There is some indication that the evaluation efforts are improving. There is planning for a system of need assessment.

. . .Private sector, commercial organizations usually need professional help from outside to develop adequate program evaluation procedures.

. . .Adequate program evaluation requires adequate lead time.

. . .You cannot properly tell how much skill or knowledge the trainees gained by asking them to tell you on a questionnaire what their perceptions were.

. . .If the perceptions of program participants are regarded as important, then all the various groups of participants (trainees, teachers, administrators, supervisors back on the job) probably should be questioned.

. . .Long-term follow-ups are rare but important.

. . ."The most obvious lesson that can be learned from this evaluation is the contribution that evaluation can make in helping assure an effective training program." (See p. D-60 below.)

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Of course, there is much that is professionally rewarding going on in the evaluations described in the case studies. Programs are being improved, trainees and teachers are being helped, and a sense of purpose can be seen being generated at least in some of the 14 studies.

What is disconcerting in looking over the case studies is that although they were chosen as being exemplary illustrations of program evaluation based on reasonable and objective criteria, the in-depth studies indicate many major deficiencies. We are not arguing that vast sums of money or great professional expertise should be continually devoted to program evaluation. But we are arguing that minimal requirements demand some systematization of the evaluation process, some attention to such details as planning of the studies and dissemination and utilization of the results. Department of Defense training programs seem to be closest to this reasonable requirement. The other three categories' programs seem to be evaluated well or poorly depending not on the institution they serve but on the professional quality of the particular individuals who happen to be entrusted with the relevant duties. This leads to a haphazard situation which cannot be recommended.

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IV. SUMMARY AND CONCLUSIONS

In 1972, Educational Testing Service began work on a series of studies and theoretical papers in an attempt to improve the theory and practice of training program evaluation. This report presents the second phase of the series--a survey of current evaluation practices across a broad spectrum of adult technical training programs.

The survey consisted of two parts. First a questionnaire survey of 200 program evaluations divided equally among four categories--Department of Defense, other federal government departments and agencies, state and local governments and agencies, including junior/community colleges, and private sector commercial, industrial, and business organizations.

Obtaining the 200 programs with evaluations was not a simple task. Except for the Department of Defense no broad listings of programs could be obtained. We generated a large pool of programs in each of the four categories and randomly selected 50 (the initial list) and then another 50 (the back-up list). If a program in the initial list was found to have been evaluated we retained the program. Otherwise, we eliminated it and tried instead a program from the back-up list. Almost all (90 percent) of the Department of Defense and private sector programs had some form of evaluation. Only 72 percent of other federal government programs and 46 percent of state and local government programs in the initial listings had evaluations.

A mailed questionnaire was sent to the program directors and an overall response rate of 71 percent was achieved. The data from the survey were then analyzed and tabulated (see the final pages of Chapter III). As well as this questionnaire survey, 14 case study site visits were conducted (Section B of Chapter III) in order to obtain an in-depth picture of what is happening in exemplary program evaluations.

The 142 programs subject to questionnaire scrutiny were quite diverse, not only among themselves but also between categories. Department of Defense programs, for example, rarely charge student fees. State and local government programs are least likely to be formally evaluated and least likely to offer their programs in more than one center.

Almost 70 percent of the programs had been formally evaluated usually for the purpose of program improvement rather than to assess program impact. The typical formal evaluation consists of questionnaires or interviews of trainees and teachers. They are usually called for, funded, and carried out by insiders rather than by agencies external to the program. Written reports are rare; written reports available to outsiders are even more rare.

When the evaluation is informal (unplanned) they consisted primarily of program staff talking to program staff and participants in order to assess their judgments. This non-recommended approach was taken by about a quarter of our 142 program evaluations.

Site visits added to our conviction that adult, technical training programs are so varied in scope, length, and substance as to defy any kind of direct fiat on how they should be evaluated. From page 22 to the end of Chapter III presents a large range of insights obtained from the site visits.

One site visitor was told: "If this evaluation is exemplary then we're all in trouble." Actually, we found even here wide variation. Most of the evaluations were indeed proving helpful and were conducted with reasonable expertise. Some, however, were not. The great need for a more systematic approach (except perhaps in the case of Department of Defense programs) was clear. Also clear was the relatively narrow interpretation of evaluation methods of investigation and the lack of adequate dissemination of evaluation results.

These and related topics are the focus of the third technical report* in this evaluation study series.

*See Ball, S. and Anderson, S. B., Professional issues in the evaluation of education/training programs. Technical Report No. 3 for Contract No. N00014-72-C-0433, NR 154-357. October, 1975.

TABLE 1

Descriptive Information about Training Programs as a Total Group and Separately for Department of Defense (D.O.D.), Other Federal Departments (O.F.D.), State and Local Governments and Agencies (S.&L.), and Industry Subgroups

A1. When did this program, as currently offered, first begin?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
1964 and earlier	17	12.3	7	18.4	2	6.1	4	14.8	4	10.0
1965	6	4.3	2	5.3	1	3.0	1	3.7	2	5.0
1966	5	3.6	0	0.0	2	6.1	3	11.1	0	0.0
1967	2	1.4	1	2.6	0	0.0	1	3.7	0	0.0
1968	8	5.8	2	5.3	2	6.1	2	7.4	2	5.0
1969	9	6.5	1	2.6	1	3.0	4	14.8	3	7.5
1970	13	9.4	1	2.6	6	18.2	3	11.1	3	7.5
1971	14	10.1	4	10.5	3	9.1	7	25.9	0	0.0
1972	20	14.5	3	7.9	3	9.1	1	3.7	13	32.5
1973	29	21.0	10	26.3	10	30.3	0	0.0	9	22.5
1974	15	10.9	7	18.4	3	9.1	1	3.7	4	10.0

TABLE 1 (continued)

QA2. About how many students/trainees have been trained in this program so far?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
0 - 49	29	22.7	6	18.2	7	21.2	8	32.0	8	21.6
50 - 99	12	9.4	3	9.1	1	3.0	4	16.0	4	10.8
100 - 149	15	11.7	3	9.1	4	12.1	2	8.0	6	16.2
150 - 199	11	8.6	2	6.1	2	6.1	5	20.0	2	5.4
200 - 249	8	6.3	3	9.1	3	9.1	1	4.0	1	2.7
250 - 999	30	23.7	9	27.3	8	24.2	4	16.0	9	24.3
1000+	23	18.2	7	21.1	8	24.2	1	4.0	7	18.9
Don't know & omit	14		9		0		2		3	
Mean and (SD)**	**	*	549	756		*	206	(339)	2097	(6971)

*One program for which an enrollment of 4,000,000 students over the years created an unusually high mean and standard deviation.

**ANOVA analysis indicated no significant differences among the means. Note, there were very high variances.

QA2a. What percentage of students/trainees complete the program successfully?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
less than 50%	17	13.4	1	2.6	2	6.5	7	31.8	7	20.0
51 - 60%	3	2.4	0	0.0	0	0.0	1	4.5	2	5.7
61 - 70%	2	1.6	0	0.0	1	3.2	1	4.5	0	0.0
71 - 80%	8	6.3	4	10.3	1	3.2	3	13.6	0	0.0
81 - 90%	26	20.5	9	23.1	3	9.7	8	36.4	6	17.1
91 - 100%	71	55.9	25	64.1	24	77.4	2	9.1	20	57.1

TABLE 1 (continued)

QA2b. Can successful trainees repeat the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	91	70.5	17	41.5	25	92.6	25	92.6	24	70.6
No	33	25.6	23	56.1	1	3.7	2	7.4	7	20.6
Don't know	5	3.9	1	2.4	1	3.7	0	0.0	3	8.8

QA2b2. If so, (trainees can repeat) what percentage of unsuccessful trainees repeat the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
0%	26	42.6	6	42.9	10	66.7	5	26.3	5	38.5
1 - 20%	26	42.6	3	21.4	4	26.7	13	68.4	6	46.2
21 - 40%	1	1.6	1	7.1	0	0.0	0	0.0	0	0.0
41 - 60%	3	4.9	0	0.0	1	6.7	1	5.3	1	7.7
61 - 80%	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
81 - 100%	5	8.2	4	28.6	0	0.0	0	0.0	1	7.7

QA3. Is this program offered in more than one center or location?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	49	34.5	6	14.3	24	72.7	4	14.8	15	37.5
No	93	65.5	36	85.7	9	27.3	23	85.2	25	62.5
Don't know	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

TABLE 1 (continued)

QA3b. If so, in how many other centers or locations is it offered?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1	9	24.3	3	50.0	2	13.3	3	75.0	1	8.3
2	2	5.4	1	16.7	1	6.7	0	0.0	0	0.0
3	3	8.1	1	16.7	1	6.7	1	25.0	0	0.0
4	4	10.8	1	16.7	2	13.3	0	0.0	1	8.3
5	2	2.7	0	0.0	2	6.7	0	0.0	0	0.0
6	3	2.7	0	0.0	2	0.0	0	0.0	1	8.3
7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	1	2.7	0	0.0	1	6.7	0	0.0	0	0.0
9	2	5.4	0	0.0	0	0.0	0	0.0	2	16.7
more than 9	17	37.8	0	0.0	10	46.7	0	0.0	7	58.3

QA4. Is this program accredited by some board or agency, etc.?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	56	39.7	19	46.3	6	18.2	21	77.8	10	25.0
No	80	56.7	19	46.3	27	81.8	6	22.2	28	70.0
Don't know	5	3.5	3	7.3	0	0.0	0	0.0	2	5.0

QA6. Is there any fee charged the trainee for taking this program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	42	29.8	2	4.8	14	42.4	19	73.1	7	17.5
No	99	70.2	40	95.2	19	57.6	7	26.9	33	82.5

TABLE 1 (continued)

QA7. Does the program have a written statement of goals?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	134	94.4	42	100.0	32	97.0	27	100.0	33	82.5
No	8	5.6	0	0.0	1	3.0	0	0.0	7	17.5
Don't know	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

QA8. Are these goals written in behavioral terms, i.e., indicating desired change in student/trainee behavior?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N*	%	N	%	N	%	N	%	N	%
Yes	108	76.6	36	85.7	29	90.6	22	81.5	21	52.5
No	32	22.7	6	14.3	3	9.4	5	18.5	18	45.0
Don't know	1	0.7	0	0.0	0	0.0	0	0.0	1	2.5

*Based on total N and not on the number who replied Yes to previous question.

QA9. Are there any formal prerequisites before a student/trainee can enter this program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	85	60.0	31	73.8	11	33.3	22	81.5	21	52.5
No	57	40.0	11	26.2	22	66.6	5	18.5	19	47.5
Don't know	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

TABLE 1 (continued)

QA10. What are they? (prerequisites)

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
At least 8th grade education	5	5.9	3	9.7	0	0.0	0	0.0	2	9.5
Some high school	6	7.1	3	9.7	1	9.1	1	4.5	1	4.8
High school education	18	21.2	2	6.5	1	9.1	12	54.5	3	14.3
Some college	3	3.5	0	0.0	1	9.1	1	4.5	1	4.8
College degree	5	5.9	0	0.0	2	18.2	1	4.5	2	9.5
Other (specify)	48	56.5	23	74.2	6	54.5	7	31.8	12	57.1

QA11. How long does it normally take a student/trainee to complete this program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
less than 1 month	56	40.3	4	9.5	28	84.8	0	0.0	24	63.2
1-3 months	36	25.9	24	57.1	1	3.0	2	7.7	9	23.7
4-6 months	15	10.8	11	26.2	2	6.1	0	0.0	2	5.3
7-12 months	13	9.4	3	7.1	1	3.0	8	30.8	1	2.6
more than 12 mos.	19	13.7	0	0.0	1	3.0	16	61.5	2	5.3
don't know	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

TABLE 1 (continued)

QA12. About how many hours of in-classroom work are normally required to complete the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
less than 10 hours	14	10.0	1	2.4	3	9.1	0	0.0	10	26.3
11-19 hours	11	7.9	2	4.8	2	6.1	0	0.0	7	18.4
20-29 hours	6	4.3	1	2.4	3	9.1	0	0.0	2	5.3
30-39 hours	18	12.9	1	2.4	12	36.4	1	3.7	4	10.5
40-79 hours	13	9.3	0	0.0	8	24.2	0	0.0	5	13.2
80-119 hours	10	7.1	3	7.1	3	9.1	1	3.7	3	7.9
120-159 hours	6	4.3	2	4.8	1	3.0	1	3.7	2	5.3
160+	60	42.9	31	73.8	1	3.0	23	85.2	5	13.2
Don't know	2	1.4	1	2.4	0	0.0	1	3.7	0	0.0

QA13. About how many hours of outside classroom work (e.g., home assignments, reading, on-the-job training) are normally required to complete the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
less than 10 hours	44	31.9	6	14.3	20	60.6	4	15.4	14	37.8
11-19 hours	13	9.4	1	2.4	6	18.2	0	0.0	6	16.2
20-29 hours	8	5.8	4	9.5	2	6.1	0	0.0	2	5.4
30-39 hours	5	3.6	2	4.8	1	3.0	1	3.8	1	2.7
40-79 hours	11	8.0	7	16.7	1	3.0	1	3.8	2	5.4
80-119 hours	10	7.2	4	9.5	1	3.0	0	0.0	5	13.5
120-159 hours	11	8.0	8	19.0	0	0.0	2	7.7	1	2.7
160+	33	23.9	10	23.8	2	6.1	17	65.4	4	10.8
Don't know	3	2.2	0	0.0	0	0.0	1	3.8	2	5.4

TABLE 1 (continued)

*QA14. How would you characterize the instruction in this program? (Circle as many as apply)

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Formal classroom teaching	125	94.0	39	100.0	30	96.8	27	100.0	29	80.6
Programmed instruction	63	55.3	23	63.9	12	50.0	16	72.7	12	37.5
Multimedia usage (e.g., tapes, etc.)	97	82.9	28	80.0	20	87.0	25	100.0	24	70.6
Small group discussion	89	74.2	22	62.9	21	84.0	21	84.0	25	71.4
Individualized instruction	77	70.0	24	66.7	12	70.6	24	96.0	17	53.1
Practical lab/ workshop experience	111	85.4	39	95.1	20	76.9	27	100.0	25	60.4
On-the-job supervised practice	52	50.0	24	66.7	4	22.2	15	75.0	9	30.0
Other techniques	29	55.8	11	57.9	3	50.0	7	77.8	8	44.4

*Percentages sum to more than 100--respondents checked as many options as applied.

TABLE 1 (continued)

QA15. Which of these is the most important element in the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Formal classroom teaching	47	33.3	9	21.4	17	53.1	6	22.2	15	37.5
Programmed instruction	3	2.1	1	2.4	0	0.0	0	0.0	2	5.0
Multimedia usage (e.g., tapes, etc.)	7	5.0	1	2.4	1	3.1	1	3.7	4	10.0
Small gropu discussion	5	3.5	1	2.4	1	3.1	1	3.7	2	5.0
Individualized instruction	7	5.0	0	0.0	1	3.1	3	11.1	3	7.5
Practical lab/ workshop experience	44	31.2	21	50.0	3	9.4	15	55.6	5	12.5
On-the-job supervised practice	10	7.1	4	9.5	1	3.1	1	3.7	4	10.0
Other techniques	11	7.8	1	2.4	5	15.6	0	0.0	5	12.5
Combination of the above	7	5.0	4	9.5	3	9.4	0	0.0	0	0.0

QA16. Are students in the program evaluated formally at the end of the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Yes	110	78.0	39	92.9	21	65.6	25	92.6	25	62.5
No	29	20.6	3	7.1	11	34.4	2	7.4	13	32.5
Don't know	2	1.6	0	0.0	0	0.0	0	0.0	2	5.0

TABLE 1 (continued)

*QA17. How is the student evaluation carried out? (Circle as many as apply.)

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Paper and pencil test developed by instructor	65	45.8	25	59.5	3	9.1	21	77.8	16	40.0
Paper and pencil test developed by someone other than instructor	41	28.9	18	42.9	6	18.2	7	25.9	10	25.0
Overall subjective judgment by instructor	53	37.3	13	31.0	10	30.3	14	51.9	16	40.0
Instructor ratings of performance, and/or products made during course	66	46.5	21	50.0	13	39.4	19	70.4	13	32.5
Performance (practical proficiency) examination	77	54.2	33	78.6	9	27.3	21	77.8	14	35.0
Simulation techniques	31	21.8	6	14.3	7	21.2	11	40.7	7	17.5
Oral examination	19	13.4	8	19.0	0	0.0	5	18.5	6	15.0
Other (please specify)	21	14.8	4	9.5	9	27.3	4	14.8	4	10.0

*Percentages sum to more than 100--respondents checked as many options as applied.

TABLE 1 (continued)

QA18. Which of these (1-8 above) is the most important element in the evaluation?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Paper and pencil test developed by instructor	16	14.8	8	20.0	0	0.0	4	16.7	4	19.0
Paper and pencil test developed by someone other than instructor	13	12.0	3	7.5	3	13.0	0	0.0	7	33.3
Overall subjective judgment by instructor	5	4.6	0	0.0	2	8.7	1	4.2	2	9.5
Instructor ratings of performance, and/or products made during course	17	15.7	4	10.0	1	4.3	7	29.2	5	23.8
Performance (practical proficiency) examination	40	37.0	22	55.0	6	26.1	9	37.5	3	14.3
Simulation techniques	4	3.7	0	0.0	4	17.4	0	0.0	0	0.0
Oral examination	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other (please specify)	13	12.0	3	7.5	7	30.0	3	12.5	0	0.0
No response	34	---	2	---	10	---	3	---	19	---

TABLE 2

N and Percentage of Training Programs which are Formally Evaluated: 1) Solely for Improvement, 2) Solely for Impact, 3) For Both Improvement and Impact, 4) For Neither Improvement nor Impact

QB(1 and 2). 1) Has there been or is there currently any formal* evaluative effort to improve the program?

2) Has there been or is there currently any formal* evaluative effort to assess the impact (effects) of the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Improvement but not impact	26	18.3	6	14.3	12	36.4	0	0.0	8	20.0
Impact but not improvement	3	2.1	0	0.0	2	6.1	0	0.0	1	2.5
Both improvement and impact	69	48.6	24	57.1	11	33.3	19	70.4	15	37.5
Neither improvement nor impact	44	31.0	12	28.6	8	24.2	8	29.6	16	40.0

*By formal, we mean some conscious, planned effort though it need not be a sophisticated effort. In contrast, an informal evaluation would mainly involve an after-the-fact looking over the program and data related to the program where this activity was not part of the overall plan.

TABLE 3

Description of the Training Program Formal Evaluations for the Total Group and Separately for Department of Defense (D.O.D.), Other Federal Departments (O.F.D.), State and Local Governments and Agencies (S.& L.), and Industry Subgroups

QB3. Who called for this program evaluation to be done?

	IMPROVEMENT									
	Total		D.O.D. N=30		O.F.D. N=25		S.& L. N=19		Industry N=24	
	N*	%	N	%	N	%	N	%	N	%
Program administrator	55	56.1	16	53.3	14	56.0	6	31.6	79	79.2
Program's educational staff	45	45.9	7	23.3	17	68.0	11	57.9	10	41.7
Outside agency	11	11.2	6	20.0	2	8.0	3	15.8	0	0.0
Other	20	20.4	11	36.7	3	12.0	5	26.3	1	4.2

	IMPACT									
	Total		D.O.D. N=30		O.F.D. N=25		S.& L. N=19		Industry N=24	
	N*	%	N	%	N	%	N	%	N	%
Program administrator	41	41.8	9	30.0	13	52.0	6	31.6	13	54.2
Program's educational staff	24	24.5	7	23.3	5	20.0	7	36.8	5	20.8
Outside agency	8	8.2	3	10.0	1	4.0	4	21.1	0	0.0
Other	19	19.4	11	36.7	0	0.0	6	31.6	2	8.3

*N's are inflated slightly and percentages sum to more than 100% because some respondents checked more than one response. Percentages are based on number of respondents to this question (N=98).

TABLE 3 (continued)

QB4. Who carried out the evaluation?

	IMPROVEMENT									
	Total		D.O.D.		O.F.D.		S.& L		Industry	
	N	%	N	%	N	%	N	%	N	%
Program administrator	33	33.7	8	26.7	10	40.0	5	26.3	10	41.7
Program developers	35	35.7	12	40.0	6	24.0	3	15.8	14	58.3
Program's educational staff	56	57.1	20	66.7	17	68.0	9	47.4	10	42.1
Outside agency	13	13.3	8	26.7	2	8.0	3	15.8	0	10.5
Other	16	16.3	6	20.0	0	0.0	6	31.6	4	31.6

	IMPACT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Program administrator	38	38.8	9	30.0	12	48.0	6	31.6	11	45.8
Program developers	14	14.3	5	16.7	2	8.0	3	15.8	4	16.7
Program's educational staff	27	27.6	10	33.3	4	16.0	8	42.1	5	20.8
Outside agency	12	12.2	9	30.0	1	4.0	2	10.5	0	0.0
Other	18	18.4	8	26.7	0	0.0	6	31.6	4	16.7

TABLE 3 (continued)

QB5. Who funded the evaluation?

	IMPROVEMENT									
	Total N=93		D.O.D. N=29		O.F.D. N=22		S.& L. N=19		Industry N=23	
	N	%	N	%	N	%	N	%	N	%
Internal funding (part of program)	81	87.1	24	82.8	21	95.5	18	94.7	18	78.3
External funding (outside grant, contract, etc.)	12	12.9	5	17.2	1	4.5	1	5.3	5	21.7

	IMPACT									
	Total N=67		D.O.D. N=23		O.F.D. N=13		S.& L. N=18		Industry N=13	
	N	%	N	%	N	%	N	%	N	%
Internal funding (part of program)	60	89.6	20	87.0	12	92.3	16	88.9	12	92.3
External funding (outside grant, contract, etc.)	7	10.4	3	13.0	1	7.7	2	11.1	1	7.7

TABLE 3 (continued)

QB6. Was the evaluation monitored by some person or group independent of the evaluation?

	IMPROVEMENT									
	Total N=93		D.O.D. N=30		O.F.D. N=22		S.& L. N=19		Industry N=22	
	N	%	N	%	N	%	N	%	N	%
Yes	39	41.9	19	63.3	10	45.5	7	36.8	3	13.6
No	50	53.8	10	33.3	11	50.0	10	52.6	19	86.4
Don't know	4	4.3	1	3.3	1	4.5	2	10.5	0	0.0

	IMPACT									
	Total N=73		D.O.D. N=25		O.F.D. N=13		S.& L. N=19		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	29	39.7	13	52.0	3	23.1	9	47.4	4	25.0
No	41	56.2	11	44.0	9	69.2	9	47.4	12	75.0
Don't know	3	4.1	1	4.0	1	7.7	1	5.3	0	0.0

TABLE 3 (continued)

QB7. What year(s) did the evaluation occur?*

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Before 1965	1	1.1	0	0.0	0	0.0	0	0.0	1	4.3
1965	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1966	1	1.1	0	0.0	0	0.0	0	0.0	1	4.3
1967	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1968	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1969	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1970	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1971	4	4.2	1	3.3	1	4.3	0	0.0	2	8.7
1972	9	9.5	2	6.7	1	4.3	1	5.3	5	21.7
1973	14	14.7	6	20.0	5	21.7	2	10.5	1	4.3
1974	66	69.5	21	70.0	16	69.6	16	84.2	13	56.5

*Most recent response recorded.

QB8. How long did it take?

	Total N=74		D.O.D. N=28		O.F.D. N=16		S.& L. N=16		Industry N=13	
	N	%	N	%	N	%	N	%	N	%
Less than 1 week	7	9.5	0	0.0	1	6.3	3	18.8	3	21.4
less than 1 month (more than a week)	4	5.4	1	3.6	1	6.3	1	6.3	1	7.1
1+ months	4	5.4	0	0.0	2	12.5	2	12.5	0	0.0
2+ months	3	4.1	2	7.1	0	0.0	1	6.3	0	0.0
3+ months	1	1.4	0	0.0	0	0.0	0	0.0	1	7.1
4+ months	1	1.4	0	0.0	0.	0.0	0	0.0	1	7.1
5+ months	11	14.9	3	10.7	3	18.8	1	6.3	4	28.6
6-12 months	7	9.5	4	14.3	0	0.0	2	12.5	1	7.1
More than 1 year	5	6.8	3	10.7	0	0.0	2	12.5	0	0.0
A continual or ongoing* process	31	41.9	15	53.6	9	56.3	4	25.0	3	21.4

*"Ongoing" was sometimes specifically written in the blank.

TABLE 3 (continued)

QB9. Is it still continuing?

	IMPROVEMENT									
	Total N=95		D.O.D. N=30		O.F.D. N=23		S.& L. N=19		Industry N=23	
	N	%	N	%	N	%	N	%	N	%
Yes	81	85.3	26	86.7	22	95.7	14	73.7	19	81.3
No	14	14.7	4	13.3	1	4.3	5	26.3	4	18.7

	IMPACT									
	Total N=71		D.O.D. N=24		O.F.D. N=73		S.& L. N=18		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	57	80.3	20	83.3	10	76.9	14	77.8	13	81.3
No	14	19.7	4	16.7	3	23.1	4	22.2	3	18.7

TABLE 3 (continued)

QB10. Who or what was the focus of measurement?

	IMPROVEMENT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Students	62	63.3	19	63.3	16	64.0	7	36.8	20	83.3
Classroom & teaching processes	45	45.9	12	40.0	11	44.0	13	68.4	9	37.5
Teachers	33	33.7	10	33.3	11	44.0	8	42.1	4	16.7
Curriculum	57	58.2	22	73.3	13	52.0	15	78.9	7	29.2
Other	13	13.3	6	20.0	0	0.0	6	31.6	1	4.2

	IMPACT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
Students	54	55.1	20	66.7	7	28.0	12	63.2	15	62.5
Classroom & teaching processes	19	19.4	4	13.3	4	10.0	8	42.1	3	12.5
Teachers	16	10.3	6	20.0	2	8.0	5	26.3	3	12.5
Curriculum	30	30.6	11	36.7	3	12.0	10	52.6	6	25.0
Other	18	18.4	7	23.3	5	20.0	5	26.3	1	4.2

TABLE 3 (continued)

Q B11. What measurement techniques were used?

	IMPROVEMENT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
"Teacher made" paper and pencil tests	10	10.2	2	6.7	2	8.0	4	21.1	2	8.3
Standardized paper and pencil tests	20	20.4	7	23.3	6	24.0	2	10.5	5	20.8
Interviews and questionnaires	63	64.3	21	70.0	12	48.0	10	52.6	20	83.3
Observations	59	60.2	16	53.3	15	60.0	16	84.2	12	50.0
Rating scales	22	22.4	6	20.0	4	16.0	6	31.6	6	25.0
Other	15	15.3	4	6.7	6	24.0	4	21.1	1	4.2

	IMPACT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
"Teacher made" paper and pencil tests	3	3.1	1	3.3	0	0.0	2	10.5	0	0.0
Standardized paper and pencil tests	8	8.2	4	13.3	0	0.0	0	0.0	4	16.7
Interviews and questionnaires	48	49.0	17	56.7	7	28.0	10	52.6	14	58.3
Observations	35	35.7	8	26.7	4	16.0	12	63.2	11	45.8
Rating scales	21	21.4	6	20.0	3	12.0	5	26.3	7	29.2
Other	13	13.3	2	6.7	6	24.0	3	15.8	2	8.3

TABLE 3 (continued)

QB12. Was the reliability of the measures assessed?

	IMPROVEMENT									
	Total N=93		D.O.D. N=29		O.F.D. N=23		S.& L. N=19		Industry N=22	
	N	%	N	%	N	%	N	%	N	%
Yes	38	40.9	14	58.6	7	30.4	7	36.8	7	31.8
No	43	46.2	8	27.6	16	69.6	9	47.4	10	45.5
Don't know	12	12.9	4	13.8	0	0.0	3	15.8	5	31.3

	IMPACT									
	Total N=70		D.O.D. N=24		O.F.D. N=12		S.& L. N=18		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	32	45.7	13	54.2	5	41.7	6	33.3	8	50.0
No	23	32.9	7	29.2	5	41.7	8	44.4	3	18.8
Don't know	15	21.4	4	16.7	2	16.7	4	22.2	5	31.3

TABLE 3 (continued)

QB13. Was the validity of the measures assessed?

	IMPROVEMENT									
	Total N=93		D.O.D. N=29		O.F.D. N=23		S.& L. N=19		Industry N=22	
	N	%	N	%	N	%	N	%	N	%
Yes	4	44.1	20	69.0	6	26.1	9	47.4	6	27.3
No	39	41.9	5	17.2	16	69.6	8	42.1	10	45.5
Don't know	13	14.0	4	13.8	1	4.3	2	10.5	6	27.3

	IMPACT									
	Total N=70		D.O.D. N=24		O.F.D. N=12		S.& L. N=18		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	33	47.1	15	62.5	5	41.7	7	38.9	6	37.5
No	21	30.0	5	20.8	4	33.3	8	44.4	4	25.0
Don't know	16	22.9	4	16.7	3	25.0	3	16.7	6	37.5

TABLE 3 (continued)

QB14. Did the measures assess the program's goals?

	IMPROVEMENT									
	Total N=94		D.O.D. N=29		O.F.D. N=23		S.& L. N=19		Industry N=23	
	N	%	N	%	N	%	N	%	N	%
Yes	75	79.8	25	86.2	15	65.2	17	89.5	18	78.3
No	14	14.9	3	10.3	7	30.4	0	0.0	4	17.4
Don't know	5	5.3	1	3.4	1	4.3	2	10.5	1	4.3

	IMPACT									
	Total N=72		D.O.D. N=24		O.F.D. N=13		S.& L. N=18		Industry N=17	
	N	%	N	%	N	%	N	%	N	%
Yes	62	86.1	21	87.5	11	84.6	15	83.3	15	88.2
No	3	4.2	2	8.3	0	0.0	0	0.0	1	5.9
Don't know	7	9.7	1	4.2	2	15.4	3	16.7	1	5.9

TABLE 3 (continued)

QB15. Did the measures assess potential side effects?

	IMPROVEMENT									
	Total N=92		D.O.D. N=29		O.F.D. N=23		S.& L. N=18		Industry N=22	
	N	%	N	%	N	%	N	%	N	%
Yes	36	39.1	13	44.8	6	26.1	10	55.6	7	31.8
No	39	42.4	10	34.5	16	69.6	3	16.7	10	45.5
Don't know	17	18.5	6	20.7	1	4.3	5	27.8	5	22.7

	IMPACT									
	Total N=71		D.O.D. N=24		O.F.D. N=13		S.& L. N=18		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	36	50.7	12	50.0	8	61.5	9	50.0	7	43.8
No	17	23.9	5	20.8	3	23.1	3	16.7	6	37.5
Don't know	18	25.4	7	29.2	2	15.4	6	33.3	3	18.8

TABLE 3 (continued)

QB16. What research design was used in this evaluation?

	IMPROVEMENT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
True experiment	14	15.9	9	27.3	1	6.3	3	13.6	1	5.9
Quasi-experiment	11	12.5	6	18.2	0	0.0	2	9.1	3	17.7
Observational study	63	71.6	23	54.6	15	93.7	17	77.3	13	76.4

	IMPACT									
	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	%	N	%
True experiment	10	15.4	5	22.7	0	0.0	3	16.7	2	13.3
Quasi-experiment	9	13.9	4	18.2	1	10.0	1	5.5	3	20.0
Observational study	46	70.7	13	59.1	9	90.0	14	77.8	10	66.7

TABLE 3 (continued)

QB18. Was there a statistical analysis of the results?

	IMPROVEMENT									
	Total N=91		D.O.D. N=29		O.F.D. N=23		S.& L. N=18		Industry N=27	
	N	%	N	%	N	%	N	%	N	%
Yes	24	26.4	10	34.5	3	13.0	2	11.1	9	42.9
No	56	61.5	14	48.3	19	82.6	14	77.8	9	42.9
Don't know	11	12.1	5	17.2	1	4.3	2	11.1	3	14.3

	IMPACT									
	Total N=68		D.O.D. N=24		O.F.D. N=13		S.& L. N=16		Industry N=15	
	N	%	N	%	N	%	N	%	N	%
Yes	22	32.4	9	37.5	5	38.5	3	18.8	5	33.3
No	36	52.9	9	41.7	7	53.8	12	75.0	7	46.7
Don't know	10	14.7	5	20.8	1	7.7	1	6.3	3	20.0

TABLE 3 (continued)

QB20. Was there a written report of the evaluation?

	IMPROVEMENT									
	Total N=92		D.O.D. N=28		O.F.D. N=23		S.& L. N=18		Industry N=23	
	N	%	N	%	N	%	N	%	N	%
Yes	44	47.8	16	57.1	9	39.1	10	55.6	9	39.1
No	45	48.9	10	35.7	13	56.5	8	44.4	14	60.9
Don't know	3	3.3	2	7.1	1	4.3	0	0.0	0	0.0

	IMPACT									
	Total N=68		D.O.D. N=22		O.F.D. N=13		S.& L. N=16		Industry N=17	
	N	%	N	%	N	%	N	%	N	%
Yes	33	48.5	10	45.5	8	61.5	9	56.3	6	35.3
No	31	45.6	10	45.5	4	30.8	6	37.5	11	64.7
Don't know	4	5.9	2	9.0	1	7.7	1	6.3	0	0.0

TABLE 3 (continued)

QB21. Could we have a copy?

	IMPROVEMENT									
	Total N=49		D.O.D. N=17		O.F.D. N=10		S.& L. N=12		Industry N=10	
	N	%	N	%	N	%	N	%	N	%
Yes	10	20.4	4	23.5	2	20.0	2	16.7	2	20.0
No	30	61.2	7	41.2	7	70.0	9	75.0	7	70.0
Don't know	9	18.4	6	35.3	1	10.0	1	8.3	1	10.0

	IMPACT									
	Total N=38		D.O.D. N=12		O.F.D. N=9		S.& L. N=11		Industry N=6	
	N	%	N	%	N	%	N	%	N	%
Yes	9	23.7	3	25.0	3	33.3	2	18.2	1	16.7
No	22	57.9	5	41.7	5	55.6	8	72.7	4	66.7
Don't know	7	18.4	4	33.3	1	11.1	1	9.1	1	16.7

TABLE 3 (continued)

QB22. Did any changes take place as a result of the evaluation?

	IMPROVEMENT									
	Total N=91		D.O.D. N=28		O.F.D. N=23		S.& L. N=17		Industry N=23	
	N	%	N	%	N	%	N	%	N	%
Yes	74	81.3	23	82.1	20	87.0	15	88.2	8	50.0
No	9	9.9	4	14.3	2	8.7	2	11.8	2	12.5
Don't know	8	8.8	1	3.6	1	4.3	0	0.0	6	37.5

	IMPACT									
	Total N=66		D.O.D. N=22		O.F.D. N=12		S.& L. N=16		Industry N=16	
	N	%	N	%	N	%	N	%	N	%
Yes	40	60.6	15	68.2	5	41.7	12	75.0	8	50.0
No	14	21.2	4	18.2	6	50.0	2	12.5	2	12.5
Don't know	12	18.2	3	13.6	1	8.3	0	0.0	6	37.5

TABLE 4

N and Percentage of Training Programs which are Informally Evaluated: 1) Solely for Improvement, 2) Solely for Impact, 3) For Both Improvement and Impact, 4) For Neither Improvement nor Impact

QB(24 and 28). 24) Has there been or is there currently any informal evaluation effort to improve the program?

28) Has there been or is there currently any informal evaluation effort to assess the impact (effects) of the program?

	Total		D.O.D.		O.F.D.		S.& L.		Industry	
	N	%	N	%	N	%	N	&	N	%
Improvement but not impact	18	12.7	3	7.1	6	18.2	3	11.1	6	15.0
Impact but no improvement	1	0.7	0	0.0	0	0.0	1	3.7	0	0.0
Both improvement and impact	22	15.5	9	21.4	2	6.1	4	14.8	7	17.5
Neither improvement nor impact	2	1.4	0	0.0	0	0.0	0	0.0	2	5.0
Does not apply	99	69.7	30	71.4	25	75.8	19	70.4	25	62.5

TABLE 5

Descriptive Information about Technical Program's Informal Evaluation (from those who responded that there were no formal evaluations)

QB(25 and 29). 25) Who carries out this informal improvement effort?
29) Who carries out this informal impact evaluation?

	IMPROVEMENT									
	Total N=40		D.O.D. N=12		O.F.D. N=8		S.& L. N=7		Industry N=13	
	N*	%	N*	%	N*	%	N*	%	N*	%
Instructors	35	87.5	10	83.3	7	87.5	7	100.0	11	84.6
Administrators	28	70.0	9	75.0	6	75.0	3	42.9	10	76.9
Some third party	7	17.5	1	8.3	0	0.0	2	28.5	4	30.8

*N based on number of respondents who answered yes to Question 24.

	IMPACT									
	Total N=23		D.O.D. N=9		O.F.D. N=2		S.& L. N=5		Industry N=7	
	N**	%	N**	%	N**	%	N**	%	N**	%
Instructors	16	69.6	5	54.4	2	100.0	5	100.0	3	42.9
Administrators	16	69.6	6	66.7	2	100.0	4	80.0	4	57.1
Some third party	8	34.8	1	11.1	1	50.0	2	40.0	4	57.1

**N based on number of respondents who answered yes to Question 28.

TABLE 5 (continued)

QB26. What information is used to guide improvements?

	Total *N=40		D.O.D. N=12		O.F.D. N=8		S.& L. N=77		Industry N=13	
	N	%	N	%	N	%	N	%	N	%
Students' judgments	28	70.0	10	83.3	6	75.0	4	57.1	8	61.5
Students' scores	21	52.5	7	58.3	4	50.0	2	28.5	8	61.5
Instructors' judgments	37	92.5	12	100.0	7	87.5	7	100.0	11	84.6
Judgments of other observers (e.g., administrators)	25	62.5	9	75.0	2	25.0	5	71.4	9	69.2
Subsequent reports from supervisors on the job	19	47.5	6	50.0	4	50.0	4	57.1	4	38.4

*N is based on number of respondents who answered yes to Question 24.

APPENDIX A

PROGRAM EVALUATION QUESTIONNAIRE

Concerning your program_____ 1-4

A. A Description of the Program

1. When did this program, as currently offered, first begin?_____ 5-7

2. About how many students/trainees have been trained in this program so far?____ 8-11

   a. What percentage of students/trainees complete the program successfully?____ 12-13

   b. Can unsuccessful trainees repeat the program? (Circle one)

      Yes. 1
      No 2 14
      Don't know 3

   If so, what percentage of unsuccessful trainees repeat the program? _____ 15-16

3. Is this program offered in more than one center or location?

      Yes. 1 17
      No 2
      Don't know 3

   If so, in how many other centers or locations is it offered? _____ 18-19

4. Is this program accredited by some board, agency, etc.?

      Yes. 1 20
      No 2
      Don't know 3

5. Which boards or agencies? (please specify)_____ 21-22

_____

6. Is there any fee charged the trainee for taking this program?

      Yes. 1 23
      No 2

7. Does the program have a written statement of goals?

      Yes. 1 24
      No 2
      Don't know 3

8. Are these goals written in behavioral terms, i.e., indicating desired changes in student/trainee behavior?

Yes.	1	25
No	2	
Don't know	3	

9. Are there any formal educational prerequisites before a student/trainee can enter this program?

Yes.	1	26
No	2	
Don't know	3	

9. What are they?

At least 8th grade education	1	27
Some high school	2	
High school graduation	3	
Some college	4	
College degree	5	
Other (please specify)_____	6	

_____

. How long does it normally take a student/trainee to complete this program?

Less than 1 month.	1	28
1-3 months	2	
4-6 months	3	
7-12 months.	4	
More than 12 months.	5	
Don't know	6	

2. About how many hours of in-classroom work are normally required to complete the program?

Note: 40 hours = 1 week full time
80 hours = 2 weeks full time
120 hours = 3 weeks full time
160 hours = 4 weeks full time

29

Less than 10 hours	1
11-19 hours	2
20-29 hours	3
30-39 hours	4
40-79 hours	5
80-119 hours	6
120-159 hours	7
160+ hours	8
Don't know	9

. How many hours of outside classroom work (e.g., home assignments, reading, on-the-job training) are normally required to complete the program?

30

Less than 10 hours	1
11-19 hours	2
20-29 hours	3
30-39 hours	4
40-79 hours	5
80-119 hours	6
120-159 hours	7
160+ hours	8
Don't know	9

14. How would you characterize the instruction in this program? (Check as many as apply)

		1 Yes	2 No	3 Don't know
Formal classroom teaching	(1)	____	____	____
Programmed instruction	(2)	____	____	____
Multi-media usage (e.g., tapes, etc.)	(3)	____	____	____
Small group discussion	(4)	____	____	____
Individualized instruction	(5)	____	____	____
Practical lab/workshop experience	(6)	____	____	____
On-the-job supervised practice	(7)	____	____	____
Other techniques (please specify)	(8)	____	____	____

31-46

_____

_____

15. Which of these is the most important element in the program? (Circle one)

47

Formal classroom teaching. 1
Programmed instruction 2
Multi-media usage. 3
Small group discussion 4
Individualized instruction 5
Practical lab/workshop experience. . . . 6
On-the-job supervised practice 7
Other techniques (please specify). . . . 8

_____

_____

16. Are students in the program evaluated formally at the end of the program?

48

Yes. 1
No 2
Don't know 3

How is the student evaluation carried out? (Circle as many as apply.)

Paper and pencil test developed by instructor.	1	49-56
Paper and pencil test developed by someone other than instructor	2	
Overall subjective judgment by instructor.	3	
Instructor ratings of performance, and/or products made during course.	4	
Performance (practical proficiency) examination.	5	
Simulation techniques.	6	
Oral examination	7	
Other (please specify)_____	8	

_____

Which of these (1-8 above) is the most important element in the evaluation?____ 57

Program Evaluation

Now I'd like to ask you some questions concerning the evaluation for this program. (i.e., where the purpose of the evaluation is to assess the program itself)

1. Has there been or is there currently any formal* evaluative effort to improve the program?

58

Yes 1

No 2

2. Has there been or is there currently any formal evaluative effort to assess the impact (effects) of the program?

59

Yes 1

No 2

If you answered No to both these questions, go on to Q 24 . If you answered Yes to either or both, please continue. Use Column A in reference to evaluation to improve the program and Column B in reference to evaluation to assess the program's impact.

	Column A Program Improvement 1	Column B Program Impact 2	
3. Who called for this evaluation to be done?			
Program administrator	___ (1)	___ (1)	60-67
Program's educational staff	___ (2)	___ (2)	
Outside agency	___ (3)	___ (3)	
Other(please specify) _____	___ (4)	___ (4)	
_____			

*By formal, we mean some conscious, planned effort though it need not be a sophisticated effort. In contrast, an informal evaluation would mainly involve an after-the-fact looking over the program and data related to the program where this activity was not part of the overall plan.

	Column A Program Improvement 1	Column B Program Impact 2	
4. Who carried out the evaluation?			
Program administrator	___ (1)	___ (1)	68-77
Program developers	___ (2)	___ (2)	
Program's educational staff	___ (3)	___ (3)	
Outside agency	___ (4)	___ (4)	
Other (please specify)_____	___ (5)	___ (5)	
_____			
5. Who funded the evaluation?			
Internal funding (part of program)	___ (1)	___ (1)	78-81
External funding (outside grant, contract, etc.)	___ (2)	___ (2)	
6. Was the evaluation monitored by some person or group independent of the evaluation?			
Yes	___ (1)	___ (1)	82-87
No	___ (2)	___ (2)	
Don't know	___ (3)	___ (3)	
7. What year(s) did the evaluation occur? _____			88-92
8. How long did it take?_____			93-94
9. Is it still continuing?			
Yes	___ (1)	___ (1)	95-98
No	___ (2)	___ (2)	

Concerning Measures and Design

	Column A Program Improvement 1	Column B Program Impact 2	
Who or what was the focus of measurement?			
Students	___(1)	___(1)	99-108
Classroom and teaching processes	___(2)	___(2)	
Teachers	___(3)	___(3)	
Curriculum	___(4)	___(4)	
Other (please specify)_____	___(5)	___(5)	
_____			
What measurement techniques were used?			
"Teacher made" paper and pencil tests	___ (1)	___ (1)	109-120
Standardized paper and pencil tests	___ (2)	___ (2)	
Interviews and questionnaires	___ (3)	___ (3)	
Observations	___ (4)	___ (4)	
Rating scales	___ (5)	___ (5)	
Other (please specify)_____	___ (6)	___ (6)	
_____			
Was the reliability of the measures assessed?			
Yes	___ (1)	___ (1)	121-126
No	___ (2)	___ (2)	
Don't know	___ (3)	___ (3)	
Was the validity of the measures assessed?			
Yes	___ (1)	___ (1)	127-132
No	___ (2)	___ (2)	
Don't know	___ (3)	___ (3)	
Did the measures assess the program's goals?			
Yes	___ (1)	___ (1)	133-138
No	___ (2)	___ (2)	
Don't know	___ (3)	___ (3)	

		Column A Program Improvement 1	Column B Program Impact 2	
15. Did the measures assess potential side-effects?				
	Yes	___ (1)	___ (1)	139-144
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	
16. What research design was used in the evaluation?				
a. true experiment	Yes	___ (1)	___ (1)	145-162
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	
b. quasi-experiment	Yes	___ (4)	___ (4)	
	No	___ (5)	___ (5)	
	Don't know	___ (6)	___ (6)	
c. observational study	Yes	___ (7)	___ (7)	
	No	___ (8)	___ (8)	
	Don't know	___ (9)	___ (9)	

17. Will you briefly describe the evaluation? 163-164

_____

_____

_____

_____

_____

18. Was there a statistical analysis of the results?				
	Yes	___ (1)	___ (1)	165-170
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	

19. (If Yes to 18) What statistical techniques were used? 171-172

_____

_____

_____

Concerning Reports

		Column A Program Improvement 1	Column B Program Impact 2	
20. Was there a written report on the evaluation?				
	Yes	___ (1)	___ (1)	173-178
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	
21. Could we have a copy? (Send prepaid envelope if yes.)	Yes	___ (1)	___ (1)	179-184
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	
22. Did any changes take place as a result of the evaluation?				
	Yes	___ (1)	___ (1)	185-190
	No	___ (2)	___ (2)	
	Don't know	___ (3)	___ (3)	

23. (If yes to 22) What were they? 191-192

_____

_____

_____

_____

FOR THOSE WHO ANSWERED NO TO QUESTIONS 1 AND 2.

24. Has there been or is there currently any informal evaluation effort to improve the program? 193

Yes 1

No 2

25. Who carries out this informal improvement effort? 194

Instructors 1

Administrators 2

Some third party 3

26. What information is used to guide the improvements?

195

- Students' judgments 1
- Students' scores 2
- Instructors' judgments 3
- Judgments of other observers (e.g., administrators) 4
- Subsequent reports from supervisors on the job 5

27. Can you tell me anything more about this informal effort?

196

_____

_____

_____

_____

_____

_____

28. Has there been or is there currently any informal evaluation effort to assess the impact (effects) of the program?

197

- Yes. 1
- No 2
- Don't know 3

29. Who carries out this informal evaluation?

198

- Instructors. 1
- Administrators 2
- Some third party 3

30. Can you tell me anything more about this informal evaluation effort?

199

_____

_____

_____

_____

_____

APPENDIX B

GENERAL LETTER OF ENQUIRY

EDUCATIONAL TESTING SERVICE PRINCETON, N.J. 08540

Area Code 609
921 - 9000
CABLE-EDUCTESTSVC

Division
of
Educational Studies

Dear Director:

As was indicated to you in a recent telephone conversation, we are conducting a survey of training programs as part of a larger study sponsored by the Office of Naval Research. Specifically, we are trying to identify a substantial number of recently introduced technical training programs for adults. We understand that your institution sponsors or conducts such programs, and we would be grateful if you could let us have a catalog or other description of your program(s) that may meet the following criteria:

1. The program has been recently introduced (i.e., no more than four years ago).

2. The program is intended for adults (i.e., 18 years and older).

3. The program is technical in orientation, not aimed at general education, hobbies, or cultural enhancement.

The program may, of course, involve one or more courses.

We realize that this letter may be misdirected, i.e., that someone else in your institution may be specifically responsible for training programs and for disseminating information about them. Should this be the case, we would be most grateful for your redirecting this request.

We hope you will cooperate in making this study possible.

Very sincerely yours,

Samuel Ball
Research Psychologist

SB:al

APPENDIX C

LETTER REQUESTING SPECIFIC COOPERATION

EDUCATIONAL TESTING SERVICE PRINCETON, N.J. 08540

Area Code 609
921 - 9000
CABLE-EDUCTESTSVC

Division
of
Educational Studies

Dear Sir:

Educational Testing Service, under a contract with the Office of Naval Research, is engaged in a survey to discover current practices in the area of program evaluation. Our focus in on technical training programs for adults.

We have compiled a list of literally thousands of training programs. From this list we have selected your program, _____, as one we would like to study further.

What we would like to do is have Ms. Patricia Wright from our office call you in the next week to find out whether you are willing to participate in the survey, and if you are so willing, to make necessary arrangements to have a questionnaire sent to you.

Because terms like accountability and evaluation in education enjoy increasing use, we feel it would be helpful to first determine which formal and informal practices and explicit and implicit assumptions occur in the real world of program evaluation--and thus this survey. Later we shall draw on the results of the survey and on the findings from other kinds of research to develop suggestions and guidelines for those who face the responsibility of proposing and conducting evaluations.

May I thank you in advance for any help you can provide us in this enterprise.

Yours sincerely,

Samuel Ball
Research Psychologist

SB:al

APPENDIX D

CASE STUDY REPORTS

1. REPORT OF SITE VISIT TO A DRUG ABUSE EDUCATION SPECIALISTS COURSE, SERVICE SCHOOL COMMAND AT A NAVAL TRAINING CENTER

Section 1 - Program Description

The Drug Abuse Education Specialist Program (DAES) is one of several programs organized under the "People's Program" that has subsequently become the "Human Goals Program" of the Navy. DAES was in response to the publicity given to drug addiction/abuse by servicemen during the Vietnam war. Previous attempts to cope with drug abuse had been educational efforts "to attempt to inform or scare the serviceman through lectures and films of the dangers of drug abuse." Reaction to such educational effort was that it only created a greater problem in that sailors who previously had been experimenters now became hard and more proficient users. In response to these negative observations concerning previous drug education efforts, the DAES program was initiated as a developmental effort in March 1971. Chief _____ and First-class _____ had previously served on six-man, drug abuse teams in Vietnam and were two of the first instructors in the program.

From the outset, the program was conceived as an intervention model. Drug and alcohol use was perceived as a symptom of other problems, and these problems related to organizational management as well as to the personal problems of staff. The DAES program was conceptualized to produce staff who might become "change agents" on return to their unit or command. The DAES course had four basic components, which were 1) pharmacology, 2) political strategy and human motivation, 3) communication, and 4) program development and evaluation. The training was designed to prepare the DAES as a staff consultant with skills to develop interventions and assistance to the staff of the command. The DAES was not intended to be an abusive or intrusive intervention but a "requested" intervention by the command.

The mission/statement for DAES is "to provide selected personnel the knowledge and skill to assist command personnel with the development, implementation and evaluation of drug and alcohol action programs." The DAES has seven major course objectives:

1. To identify the role of a DAES specialist at his command.
2. To demonstrate knowledge of pharmacology of common drugs.
3. To demonstrate personal communication skills with individual and group situations.
4. To prepare and present learning situations using a variety of media.
5. To demonstrate understanding of issues associated with the use and abuse of drugs and alcohol.
6. To design comprehensive command drug education and action program.
7. To identify and utilize appropriate resources - supportive of command drug programs.

During the three years of the program, the objectives have been altered slightly as more skill in writing objectives and more pressure to validate the program have been experienced. The initial training program was four weeks, which was subsequently lengthened to the current five-week program.

The DAES program, after being implemented for approximately two years, produced the observation that there was need for officer intervention in some commands. As a result, the DAPO (Drug Abuse Officer) was introduced to provide management training at the officer level of commands needing to establish intervention programs. Subsequently, a DAPA program has been initiated to provide technical specialists in drug abuse programs, which may provide further assistance to the DAES in the management and operation of an intervention program. While this report is primarily concernec with DAES, the continuing developments of the intervention model has spawned these two new training programs that amplify the initial efforts.

This program has been planned to serve every rank in the Navy. As a result, enlisted men of every rate and officers have been found in the classes from 1971 - 1974. Most classes have approximately 15% officers and 85% enlisted men. Those selected for the school have a GCT score of 52 and be released and recommended by their command for the training program. Each class (which runs five weeks) has from 20 - 35 students. A major concern from the beginning has been the attrition, which has run as high as 40% in some classes and typically runs 25 - 30% in each class.

This program was organized to train 250 men for DAES billets in the Navy. (It was planned that there should be a DAES for every command having 5000 men.) The plan was to train 250 DAES in 1-1/2 years. Actually, it took 2-1/2 years to accomplish this training, and with the attrition and change of assignment, a continuing need for DAES and DAPA personnel is found.

The training program has been at the Naval Training Center in San Diego since 1971 but will shortly be discontinued, as the entire Human Goals Training program, as of March 1975, is being centralized in Memphis. In contrast to the present five-week DAES training program, the new 12-week Human Goals Program will incorporate a 2- or 3-week module on DAES, along with the other elements of organizational development, management and planning.

There are approximately 350 graduates of the DAES, DAPO and DAPA programs. Students in the program are evaluated at the completion of each unit of instruction. Detailed instructional goals and guides are developed for each unit of instruction. Part of the "IG's" are the written, oral or observational assessments that are made of the students at completion of each unit or activity. The largest attrition of this program occurs in the first and second weeks. At the end of the first week, at least half of the attrition occurs from students who drop out of the program and return to their unit. The other half of the leavers are those who are unable to handle the "cognitive load" and the intensive study that is required. The pharmacology unit is the first one presented in the course and demands the greatest amount of technical reading. The instructors also evaluate the students on their attitudes, awareness and sensitivity to the conceptualized role of the DAES specialist. Some students are washed out for lack of appropriate attitude. There has been

a continuing concern with the percentage of attrition; and although staff and external evaluators have suggested several possible solutions through more detailed and relevant selection procedures, it is generally concluded that these selection procedures are impractical because of time and communication constraints within the Navy.

Section 2 - What kind of evaluations were carried out?

Program evaluations have been both internal and external. The Bureau of Naval Personnel requested that an external evaluation be conducted and prepared in an RFP, which was sent to "selected consultants or agents." The contract was awarded to the ____ Drug Abuse Training Center, Department of Psychiatry, School of Medicine, ____. The purpose of this evaluation was to determine the developmental progress of the DAES school. This consisted of a review of previous accomplishments and current operational efforts of the DAES course. From site visitations both to the school and the fleet commands, subjective judgments were formed with respect to the accomplishment of the program. The primary task for the evaluation was "to determine if the DAES course was doing what it should do and how well it was doing its job." The evaluation also was directed at providing recommendations for constructive modification or improvement of the DAES program. To consider the effectiveness of the program, the external evaluators directed their attention to, 1) program administration, 2) curriculum, 3) instructional processes and, 4) product validations. The latter was done through making a field survey of DAES activities after graduation and assignment. The title of this external evaluation was "A Subjective Evaluation of the Drug-Abuse Education Specialist Course, Personnel Management Schools Department, Service School Command, Naval Training Center,_____." The fact that it is characterized as a "subjective evaluation" reflects the nature of the inquiry, the types of information provided, and the reporting style. The external evaluation was carried out by investigators who were known (by reputation) by the staff of the DAES school. It is believed that the staff's recommendation for the awarding of the contract to these consultants had a large part in their selection.

A second external evaluation by the Naval Personnel and Training Research Laboratory (not directly connected with the Training Command) was an evaluation of factors contributing to attrition at the Drug Abuse Education Specialist School. This study was requested by the staff of the program with some apparent encouragement from CNET or CNTT as a means of developing recommendations for program improvement and effectiveness. The primary focus of this study was a detailed task analysis and tally of responses of graduates of the school's program. This was also paid for by the Bureau of Naval Personnel, as was the external evaluation that was conducted by the ____ Medical School consultants. The evaluation was called "A Task Analysis" by the Personnel Research and Development Center. This evaluation by the Bureau of Naval Research and Development generated a unique instrument for making a task analysis, administered the instrument to all graduates of the program and completed a statistical report of the responses of previous students (approximately 65% responded to the questionnaire). While no formal report was provided with this task analysis, the item data were summarized and submitted to the program staff

for their use in considering program modification and improvement. The design of the task analysis and the treatment of the data appear to have been conducted with substantial expertise. The audiences for these two external evaluations were in each case the program funders (Bureau of Naval Personnel) and the program staff of the DAES School. The expected outcomes and benefits of the evaluation were apparently largely directed toward program improvement and modification rather than toward decisions for continuing or terminating the program.

An almost continuous array of consultant/evaluation services have been contracted for by the staff of the DAES program. These consultants have provided technical expertise and training to the program staff in every phase of the program. For example, clinical psychologists have been used for staff in-service training on communications skills, individual and group work, simulation activities, personal motivation, awareness, values and commitments. Other consultants have been used on management systems designs and techniques to develop "change agents." Other consultants have been obtained to provide models and alternatives to drug and alcohol interventions. Consultants have been used for staff in-service concerning the analysis of operational units within the Navy; formal versus real chain of command and communication networks, and for the identification of alternative strategies of intervention for management development and implementation of command operations. This array of staff-contracted consultant/evaluators were invited to visit the school, make their observations, and then be used by the instructional staff of the school to "pick their brains" for content, process or organization that might improve the motivation and effectiveness of the program. While these consultants were paid for by the Bureau of Naval Personnel (at the request of the training staff), no formal evaluation reports were provided. In general, the reports were the consultant's documentation of the activities or services he provided to the DAES staff during his tenure of consultancy. It was the anticipation of the DAES staff that these consultants would provide them with new knowledge, content and insights for their own personal development as well as program improvement. Their perception of the usefulness of these consultants was directly related to their combined judgments as to whether the consultant was providing useful input into their program or the processes that they might modify or improve.

It should be stressed that the evaluation of the DAES program was directed heavily toward the monitoring of ongoing operations, the analysis of contents and processes, and the suggestions for improvement of program effectiveness. A classic and comprehensive evaluation design for program evaluation was generally lacking. No comprehensive model or application for program evaluation was found in any of the evaluation efforts. This is thought to be related to the fact that DAES was a new conceptualization that was undergoing almost continual modification with each succeeding class. Specific objectives and processes were also undergoing modification.

When the staff were interrogated as to the model of the external evaluations, they responded that they were not aware of any model or design of evaluation. They expressed great confidence in the consultants and respected their subjective approach to assess the school and follow up with the graduates in the various fleet commands. Typically,

the consultants returned to the school and informally shared their observations and evaluations of content and process with the instructional staff. The DAES staff, to a man, reported that the evaluation contributions had been very helpful to them. They believed the most help was the almost continual sharing between evaluators and staff in the course of their assessment and evaluation activity. A substantial purpose of the program staff of the external evaluations and employment of consultants/evaluators was to obtain documentation which would justify the attendance of the training staff at educational conferences, workshops and other forms of formal and informal training. For example, the staff have attended workshops on transactional analysis and NIMH evaluation workshops put on by educational institutions and have made contact with, or matriculated in, formal courses in higher education with relevance to their intervention program. The director and staff of DAES believe that the subjective evaluation reports of the external evaluators and the employed consultants provided at least 50% of the documentation which justified increased appropriation from the Bureau of Naval Personnel to fund inservice training, other forms of education and wide visitations by the program staff. From this standpoint the staff believed the evaluations were extremely successful and accomplished their goals or purposes. In contrast, it is questionable whether explicit documentation of the operational effectiveness and the validity of the operation from the standpoint of the Bureau of Naval Personnel was provided in the somewhat subjective reports of both the formal external evaluators and the consultant/evaluators employed by the staff. Thus, on one hand, the evaluations were perceived as effective by staff, but it is unknown whether other recipients of the reports (CNET, CNTT, and the Bureau of Naval Personnel) share the value of these reports. The only inference that may be drawn is that the Bureau of Naval Personnel increased the funding of this program and inservice training for the instructional staff.

In the classical sense of systematic and comprehensive models of evaluation, these evaluations left something to be desired; they would certainly be characterized as more subjective than systematic, and the reports must be characterized more as impressionistic than documented by systematically acquired data. For example the task analysis conducted by the Navy Personnel Research and Development Center made no mention of the disparity between the number of questionnaires distributed and the number of questionnaires summarized. It is believed there was something close to 25% attrition from distribution to completed questionnaires. In light of the extremely sensitive nature of intervention programs, it would appear highly important that this attrition be dealt with in submitting an analysis of the task analysis data.

In addressing the question of the level of technical competence with which the evaluations were conducted, one must consider the difference in design of evaluation for ongoing developmental programs and those that have established dimensions, goals, objectives, contents and processes. This DAES program was kaleidoscopic in its almost ever-changing manner. Thus, the conventional or traditional program evaluation model would probably be ill-adapted to this situation. At the same time, it appears that there was substantial lack in identifying the goals and objectives of the course presently existing as they considered the effects or outcomes on the student graduating from the course. No specific assessments of skills or interventions were undertaken for the

DAES as he returned to his command. All of the assessments seemed to be observing what the DAES was doing rather than assessing to what degree certain anticipated outcomes were being achieved. Thus, one might say that the technique for assessment in these evaluations was more concerned with providing descriptive information of what existed in a fairly open-ended manner, and thus providing opportunity to obtain observations about unintended as well as intended results from the program.

Perhaps one of the most serious concerns relates to the fact that the objectives for the course were not always fully understood and communicated to the command from which the students were coming. It was also concluded by the staff that the skills of the DAES as a change agent could not be overtly assessed in conventional terms since the success of the "change agent" would be reflected by his lack of visibility or lack of obvious efforts at making changes in management and command procedures. Thus, there was substantial ambivalence as to whether discrete skills, knowledges and actions were appropriate exemplars of success for the eight major objectives of the school and the larger mission objectives of the DAES.

Some technical competence was demonstrated by the Naval Research Laboratory in their analysis of the Strong Vocational Interest Test and an attitude test specially constructed to test students in the school. These instruments were administered to all entering candidates; and, at the conclusion of the class, blind analyses by the Naval Research Laboratory were made of their predictions of those who would be successful and those who would not. It was found that the profile of the Strong and attitude tests combined would offer predictions at the 90% level of accuracy.

A good illustration of the lack of use of evaluation measurement data is the fact that while attrition was the greatest problem to the program and there were solutions suggested offering preliminary validation, other problems were cited as overriding in using such assessments (time constraints, communication problems, and the mobility of the Navy personnel). Thus, while some assessment and evaluation activities were conducted with rigor and technical competence, there was no commitment to the notion that if findings suggested more desirable practices, changes would be made. A commitment for actions or uses of evaluation that might be made was obviously not made prior to the contract or conduct of the evaluation. Another example is the creation of a "learning style inventory" that was administered to all of the classes and was found to be extremely useful in allowing individuals to develop insight into strengths, weaknesses and particular emphases that would improve an individual's effectiveness during the course of the program. This procedure, however, was apparently not routinely used and became only a providential addition as time and circumstance might allow.

One of the greatest paradoxes of this program evaluation is the fact that the instructional staff, the director of the program, and their continuing consultants held different criteria for program effectiveness than the criteria selected as conventional indices by the Bureau of Naval Personnel. Thus, the Bureau will probably require hard data for the judgment of effectiveness that will deal with such things as EOPC retention, court martials, discipline, advancement records and incidence of drug and alcohol abuse. In contrast, the staff believe the real success of the program is

in relation to developing more effective management and development plans in each command so that organization and management of commands carry out the human goals program. The staff believe these outcomes, however, may not be readily observed, and they do not believe that the Bureau of Naval Personnel or the commands would put up either the budget or the time to do a sufficiently thorough, relevant and reliable evaluation of these outcomes. In contrast the more simplified statistical reports on incidences of various kinds of drug and alcohol abuse, retention, etc., will be used as evidence of success.

The staff evaluation of the relative effectiveness and usefulness of the several evaluations was extremely positive. Directors, coordinators and instructors were in agreement that the evaluations were subjective reports but were extremely helpful because of the nature of the consultants who provided the subjective reports. Obviously the credibility, acceptability and facility of communications became substantial elements in the perception of the DAES staff of the effectiveness and usefulness of the evaluation.

Two consultant/evaluators were cited as individuals who lacked awareness of the conceptualization of the program and provided mechanical or "canned" solutions for program modification and improvement. These consultants were quickly rejected by the staff, and the consultant/evaluator contract was terminated.

The program represented an unusual developmental effort by individuals who represented an openness to analyze and grow both in terms of personal attributes and program development. As a result, their interpretation and evaluation of the consultants and the evaluations may well have been in relation to that which was perceived as useful and meaningful for the particular stage of development of the staff and might well be perceived differently by others with less open and inquiring attitudes. A staff with constrained views of what a program should be and with great interest in setting in concrete the program with specified contents, dimensions and outcome objectives would probably appreciate different evaluations. This group represented a free, open-inquiry approach and as a result were extremely appreciative of the subjective evaluation reports. The consultant/evaluators had high credibility both personally and professionally with the project staff. These subjective reports undoubtedly held some credibility for the Bureau of Naval Personnel, as reflected by the very extensive and adequate funding of these programs.

The staff did agree, however, that outcome statistics would have been very useful. They would like to use outcome statistics with their students to illustrate the needs of the programs.

The staff clearly identified that a critical analysis of needs data (of statistics, demographic characteristics and attitudes) would be extremely important for designing such a program. Such a needs analysis was not conducted, and as a result they felt there was some lack and some necessary hesitance or staggering around to finally develop a match between the needs of commands, the needs of persons in training, and the needs as perceived by the Navy for improving their human goals program. On the other hand, the subjective reports made to the Bureau did have some impact. In at least three instances, the Bureau demanded that a certain kind of training be emphasized and carried out. While the staff of the training school did not

fully agree, because of Bureau insistence, they modified the program as requested by the Bureau. For example, there were several types of experiences which the staff felt would be helpful for the students, such as visiting the ghetto and contacting drug pushers, etc. Such practices (reported in the evaluation reports) were so offensive to higher-echelon command and Bureau personnel that by insistence they were terminated. Thus, one would have to conclude that the evaluations did indeed effect funding and program modification.

One would have to conclude that, in anticipation of a formal complete model, these evaluations fall short of the mark. They did not make systematic assessments of either process or product but wove an interesting fabric from the subjective evaluations of the program's goals, objectives, personnel, processes and contents, and the observed actions of people after they had completed the program.

The DAES program is completing two more classes and will be moved as a sub-element in the new Human Goals Management Program housed in Memphis. This consolidation of training efforts is the Navy's attempt to develop a human resources management center in Memphis, where instruction in all aspects of the human goals and human relations as a management problem will be housed. In this regard, the new Navy Human Resource Management Survey is perceived as an instrument which has borrowed from the observations and developments of the training command's experience. The questionnaire will be useful to the DAES and any number of other command personnel in working on human relations as a management problem.

The special lessons that might be learned from studying these evaluation efforts have probably been referred to previously, but in summary seem to be the following:

1. Innovative and developmental programs probably need less restricted or constrictive evaluation designs and models than are typically applied to static programs that are to be evaluated in relation to cost-effectiveness, validity or productivity.

2. Evaluations, regardless of model or design, constantly interact with or are confounded by the nature of the personnel who are being assessed, receive the reports, or must make decisions. The nature and expectations of the key personnel involved in and affected by evaluation are frequently not known by the evaluators or are not known by the people who are requesting the evaluation or are to receive the report. However, without knowledge of this, it is not infrequent for a mismatch to be found between the nature of the individuals intimately involved in the assessment and the evaluation and the various external evaluators. Conflict in attitude, values, terminology, and communication style may become so critical that the assessments may be aborted; and the ultimate evaluations, whether subjective or documented, may be ignored as irrelevant. In contrast, where empathy and high-fidelity communication exists between consultants/evaluators and personnel being assessed, there appears to be high likelihood that even somewhat critical and derogatory statements may be taken for self-improvement rather than rejected as self-destructive.

3. Needs analysis prior to program development and implementation and/or evaluation continues to be an often ignored but ultimately important aspect of the evaluation process. The "is-should" model appears to be a useful one that is easily understood by a staff relatively unsophisticated in evaluation. The "is-should" model and the management development systems model appear to be useful in helping staff develop insights into the nature of assessment and evaluation. After the fact, the staff discovered the importance of the needs assessment and lamented that it was now "too late."

4. The effectiveness of this evaluation was highly related to the personality characteristics of the principal staff members engaged in the operation of the program. The openness of the staff may be directly related to the conclusion that the evaluation was useful and effective. One may question whether summarizations about the relative effectiveness or usefulness of program evaluation may be as much a function of the attitudes and characteristics of the recipients as of the technical competence, comprehensiveness or effectiveness of the evaluation conducted.

5. It has long been stated that it is frequently difficult to find a constituency for evaluation. Yea, though I speak before many groups, I rarely find the clamor, "Please come and evaluate me!" The enthusiasm for evaluation seems to swell largely in the evaluator rather than the evaluatee. The antidote for this generalization may be found in the involvement and maturity of the various persons who are intimately related or effected by the evaluation.

2. REPORT OF SITE VISIT TO U. S. SIGNAL CENTER AND SCHOOL CONCERNING A DIGITAL SUBSCRIBER TERMINAL EQUIPMENT REPAIR COURSE

Introduction

In reading this report and the program evaluation questionnaire it is important to note that the elements of evaluation described are part of a comprehensive system of training and evaluation which transcends the specific course heading of the questionnaire and this report. Neither the specifics of the questionnaire nor the content of this report can adequately reflect what is considered by this reporter to be a most efficient and thorough-going effort. The report will, however, attempt to describe the more general system at appropriate places so as to put this specific course into the broader evaluation context and to qualify properly the more specific information reported in the questionnaire.

The Program

The U. S. Army Signal Center and School at _____ is one of a network of twenty-three training schools located in various parts of the United States. Although the schools differ in the types of training offered, their operations are based on common policies, regulations and procedures developed under the broad review and direction of the United States Army Training and Doctrine Command (TRADOC) at _____ _____, Virginia.

The repair course described in the Program Evaluation Questionnaire for this study is one of over thirty courses offered at _____ to some 15,000 trainees a year including small proportions of trainees from other service branches whose military occupation specialties (MOS) deal with military communications and electronics.

Although the training program includes instruction for commissioned officers, the majority of courses are provided for non-commissioned officers and other personnel in selected military occupation specialties. These courses typically include "hands on" training, center around quite specific performance objectives, and usually require some 15 to 20 weeks to complete in peacetime. Some courses are offered several times in a calendar year. Each course, on every occasion offered, is subjected to the same evaluation procedures.

The Evaluation

Very broadly viewed, the evaluation of this program is included in the seventh and last major step of a formally developed model referred to as "Systems Engineering of Training". The major steps in this model are: job analysis, selecting tasks for training, training analysis, developing training material, developing evaluation materials, conduct of training, and quality control. System engineering, became required for all courses in 1973 via a major document on the subject issued by TRADOC. At that time a majo: effort was made to eliminate or greatly reduce theory-based instruction and testing in favor of performance criteria and performance testing.

In the spirit of the new directions, the major goals of evaluation are: 1) the certification of ability to perform specific tasks at the termination of the course, and 2) the provision of feedback for purposes of course improvement. Of course, each course cannot be changed by small increments for each new class; rather the results from each class evaluation are considered together when plans of instruction are periodically changed.

The overriding value from which both the model and the nature of measures are derived is explicitly stated as follows: "training objectives will be based on job tasks and tests will be based on the criteria established for the training objectives".

Again in general terms, it is intended that in quality control "all elements of the instructional system are examined and adjusted in order to assure that the desired quality of training is achieved with the minimum expenditure of resources".

Both internal and external sources of data are gathered and analyzed formally. Informal evaluation efforts are made, as well. These procedures are described in some detail later on in this report.

Evaluation in the Army's schools, as indicated in the Introduction, is part of a comprehensive system. As such we would expect it to be more formal, more regular, and institutionalized to a greater extent than efforts elsewhere described as less systematic. And so it is.

Evaluators are full-time professionals occupying formal positions in Evaluation Branches at each of the schools. These positions are provided according to procedures described in a staffing guide for Army Service Schools. In the case of the school at _____, the Evaluation Branch consists of eight full-time professionals with varied experience whose chief is a senior civil servant with over thirty years experience in evaluation at _____.

The evaluations required of all courses at the schools are conducted with funds formally budgeted for the purpose by each school and approved by commands both locally and at TRADOC. These budgets include all costs - staff, materials, data processing services, etc.

Although from time to time interest in the results of a particular course evaluation extends as far as field commanders in overseas posts, the primary audience for course evaluation results is the local command at each training school. Since TRADOC at _____ is responsible for coordination and supervision of all training for the Department of the Army, their group, too, is a recipient of all reports of results.

In general terms it was expected that this course evaluation, like those for most courses, would "verify that the course was producing graduates capable of performing their tasks in on-the-job situations, and contribute specific information for course improvement". Expectations held for this course evaluation were realized. Based on analysis of the data from questionnaires and ratings the report concluded that "the course did effectively prepare graduates to perform competently when assigned to field units" and indicated as well two areas of course work

where additional time was needed. These findings were anticipated since the course had been offered several times before, had been "systems-engineered" and had been approved in revised form by TRADOC the year before.

Evaluation Methods

The formal evaluation might be described as a two-stage strategy. The first stage concurrent with the presentation of a course consists primarily of performance-based measures often consisting of test situations set up on actual equipment, or utilizing simulators or mock-ups, when circumstances prevent the use of the actual equipment. Detailed procedures for direct testing of this type are required and specified in such documents as the revised edition of Performance Testing for System Engineered Courses prepared by Evaluation Branch personnel.

Evaluation we have termed "concurrent" for purposes of this report is intended to assist instructors to locate strengths and weaknesses during instruction and to verify that trainees meet course objectives by their satisfactory performance in the test situations. Such sources are referred to as internal sources of quality control data by the Army.

The second stage focus and the more important criterion for success of individual trainees and the course is performance on the job. Assessment of performance on the job is delayed until trainees have been on duty approximately five months. Evidence is then gathered from two sources: from the graduates with elaborate questionnaires and from their supervisors through questionnaires and supervisors' ratings. These sources are referred to as "external" sources by the Army.

(We should note here that the first stage, with its attention to very careful specification of steps and procedures from original specifications to methods for equating instructors grades, is omitted from the program evaluation questionnaire.)

Informal evaluation is also undertaken. Internal sources of less formal data include audits or observations, student comments and recommendations, and of course, the comments and recommendations of experienced staff and faculty. Examples of external sources of less formal data are reports by commanders, combat reports, field test results, and interviews with returnees from field assignments.

Although the specifics of the performance testing for this course were not observed or discussed during the visit, the formal external source instruments can be described briefly. The postgraduation questionnaire was administered five months after training was completed. It is job-oriented, requesting twelve pages of detailed information, in this case on 203 job tasks, organized around some nineteen headings such as Site Operation and Maintenance, Receiver Site Equipment, and Equipment Repair.

The Supervisors' questionnaire typically covers questions about the graduate's duty assignment and on-the-job training and provides ratings of his job proficiency in major task areas as well as in skill and knowledge areas. Standards and Definitions of the rating scale positions are provided to contribute to improved reliability of the ratings.

The two questionnaires are mailed to the commanding officers of appropriate units with a covering letter from the Commanding General of the Signal Center and School. Reminder cards are attached to both questionnaires requesting the students and the supervisor to return them completed within seven days.

Evaluation Results and Effects

Qualified full-time staffs in Evaluation Branches working from detailed specifications and procedures almost guarantee that evaluations such as these will be carried out with technical competence.

It is important for the reader at this point, however, to distinguish clearly between evaluation and research. These distinctions are far from superficial or pedantic. There are major differences between the two, and military training is a noteworthy example of the utility of viewing them differently. One distinction relates to the purpose for the analytic activity - a situation which centers on the outcomes of a very carefully developed plan of action, (evaluation) as distinct from general and open investigations (research).

Another distinction is the usual absence of specific experimental variables, comparison groups including controls, and matters of true or quasi - experimental designs.

The logic of the system engineered course and its analytic procedures result in the view that what is offered is the best under the circumstances; all trainees are to receive the same program because it is considered the best under the circumstances, and the overriding purpose is to produce as many with the proficiencies indicated as are exposed to the training. It must not, it cannot, be withheld for purposes of experimentation. Experimentation and research, while important, are reserved for other situations with more uncertainty.

The main point of this apparent digression is to note that the more traditional research - oriented elements such as variables, designs, etc. are often inappropriate indices by which to judge an evaluation.

When judged from an understanding of the necessary distinctions between evaluation and research, this evaluation and others conducted at _____ are especially noteworthy examples of competent evaluations which succeeded in accomplishing their goals.

The evidence on the matter of accomplishment is varied indeed - in this case, the objectivity provided by competent professionals in the Evaluation Branch, comments from a review by the Department of Data Communications, concurrence with the comments from Data Communications by the Curricula Branch are examples of the multiple reviews this evaluation received. All evaluation studies receive these multiple reviews by independent units.

Staff at _____, New Jersey were quick to point out, also, that quick action at the command level to implement recommendations from evaluation studies was the best evidence that the evaluation accomplished its goals. It also serves to underline at the command level the

importance that is attached to evaluation by the Department of the Army.

Although there appears to be no formal provision for or concern with unintended outcomes, which lie outside the course objectives, or side effects of the program, the informal sources mentioned earlier are probably varied enough to detect serious side effects should a program produce some.

Overall Characteristics of the Evaluation

The absence of Methodological and operational problems in this evaluation important enough to surface, either in an on-site visit or in reviews of major documents and reports of the program, is the direct result of the role evaluation plays in the Army training Schools. It is a routine, and like all routines, the more often it is performed the smoother the operation becomes.

This reporter would speculate that some quantitative specialist bent on finding some methodological flaw in the thirty pages of tables and narrative would be rewarded; he might point out, for example, that apparent differences in proportions were not tested for significance or, as mentioned before, some effort to apply quasi - experimental design would strengthen the report, or that additional correlations between course grades, performance tests, supervisor ratings, etc. should be undertaken.

In the opinion of the writer, however, this would be missing the point.

There are several features of this evaluation which, when interwoven as they are here, make this effort noteworthy:

- the course objectives, the course material, and later performance on the job deal with specific behavior which can be readily specified and observed;

- the systems engineering of courses is a carefully and logically developed backward reconstruction of important analyses beginning and ending with analysis on the job which contributes tangible results and documents all along the way, and which can be refined further in successive efforts;

- the procedures for instructional delivery and for evaluation are carefully developed, presented in written specifications, and implemented as specified - there is an almost total absence of ambiguity or irrelevance or redundancy;

- the measures of the results of instruction are extremely potent performance measures offering instructors valid and direct evidence of success;

- the confidence in the use of evaluation results by commanders is justified not only from previous experience but from the mutual respect between line officers, and dedicated civil servants who lend professional stability to the enterprise.

Key ideas in the evaluation can be represented by the words "systematic", "documented", "feedback", "performance criteria", and the military term "command action".

While it is recognized by this writer that many programs in public education do not lend themselves as readily to the precision in specification as this and other training programs do, nevertheless in his opinion there is no better operational example anywhere of the educational principle that evaluation is a part of the instructional process.

3. REPORT OF SITE VISIT TO AN AIR FORCE BASE CONCERNING THE PROGRAM FOR TRAINING AIR TRAFFIC CONTROLLERS

Section 1 - What is the program like?

This is a program to rrain air traffic controllers to serve for the Air Force. Program serves approximately 600 to 1000 students per year. Persons coming into the program are either nonprior service personnel or personnel being retra!ned for the position of air traffic control operator. Major criteria for student selection is an aptitude, ,basically an electronic aptitude, of the 80th percentile or higher. The goal of the program is to train air traffic control operators to a point where they can then go to "on-the-job" training. Major criteria for success in the program is completion of FAA requirements for position of air traffic control operator. Students are evaluated primarily with criterion-referenced tests based upon FAA guidelines.

Section 2 - What kind of evaluation was carried out?

The evaluation for this particular program is primarily a feedback from people on the job, either graduates of the program or the supervisors of the graduates of the program. The basic goals of evaluation are in the area of curriculum revision. They are not involved in the direct evaluation of students nor are they involved in the direct evaluation of instructors.

The evaluation report we received is one of some 40 course evaluations per year generated by the Training Evaluation Division at _____ AFB. Every evaluation follows a common procedure:

Statement of goals for the evaluation
Sample selection
Mail questionnaire
Field visit
Staff evaluation of curriculum
Analysis and report
Follow-up

The backbone of each evaluation is a questionnaire including a checklist taken from "Specialty Training Standards" (STS). The STS defines the tasks expected of a person in a specific job. This is perhaps one of the best examples of criterion-referenced measurement I have seen. These detailed, task oriented criteria make the evaluator's job much easier. In the words of Director, _____, "Our evaluations are primarily designed to determine if graduates are able to perform the task on the job at the stipulated proficiency level."

The paper "Evaluation of Courses Developed Under Instructional System Concept" is an excellent presentation of the philosophy and procedures of course evaluations at _____AFB.

Section 3 - Who carried it out?

The evaluation was carried out by the Program Evaluation Division. This division consists of a director, seven training specialists, and four support personnel. These people were rotated in position of evaluator; they were formerly administrators in the instructional program. They are basically in-house evaluators, however, they are not in the direct chain of command for the instructional program. They answer directly to the commander of the school.

Section 4 - Who paid for the evaluation, how and under what circumstances?

This evaluation is conducted from the command level (personnel are budgeted at the command level) and there seemed to be no problem with finances in the program.

Section 5 - Who were the audiences of the evaluation?

Audiences for the evaluation are mainly the school commander and the instructional program.

Section 6 - What were the expected outcomes and benefits of the evaluation?

The benefits of this particular evaluation are in the area of curriculum revision. As stated earlier, this particular outfit is not involved in the evaluation of students or the evaluation of instructors. Their main job is to go out and survey people on the job who have completed the program to determine whether or not the training they received was adequate preparation for the job they are now performing. Based upon this evidence, they then make recommendations for changes in the training program.

Section 7 - What did the evaluation comprise of?

The evaluation was primarily based upon a mailed questionnaire to either graduates of the training program or supervisors of the graudates of the training program. The backbone of this questionnaire is a task checklist for the job to which the graduate has been assigned. In addition to this mailed questionnaire, the evaluators also conduct on-site visits and interviews with former graduates to determine the strengths and weaknesses of the training program.

Section 8 - Was evaluation carried out with technical competence? If not, what went wrong?

This program appears to be carried out with a great deal of technical competence. The outline of the evaluation in terms of planning and in terms of design is very good. The people who actually do the technical evaluation are not trained in evaluation but are rather subject area specialists who are familiar with the training and the job to which graduates will be sent. The evaluation plans as mentioned previously are very much structured.

Section 9 - Did the evaluation accomplish the evaluation's goals?

Yes, most of the people here seemed to be well-pleased with the evaluation results. The instructional personnel indicate that the recommendations are in a form which they can use to make revisions in the instructional program. The commander of the school has often given credit to the evaluation unit for their excellent work.

Section 10 - Did the evaluation seem to help the audience for whom it was intended? Were any changes made as the result of the evaluation?

Yes, there were some examples given of changes made in the curriculum, particularly in terms of the type of equipment used in the training, the amount of training time spent on various tasks, and, to some extent, changes in the methodology used by specific instructors.

Section 11 - Did the evaluation look for unintended outcomes?

Only superficially. There were some open-ended items on the questionnnaire that asked the graduates or supervisors of graduates to indicate areas where there was over-training or areas where training was needed and was not provided. The evaluators attempt to follow up on open-ended responses in on-site interviews.

Section 12 - What was good about the evaluation? Was there anything quite noteworthy?

This is an excellent evaluation effort given the circumstances under which these people work. The strong points of the evaluation are (1) that the evaluation effort has the excellent support of the commander of the school, and (2) the personnel involved in the evaluations are subject matter experts so that their credibility is quite eye-winning when evaluation results are reported back to instructional personnel. This program obviously has an advantage in that they are able to keep track of the personnel when they leave the training. The evaluators are able to trace these people to the job 90 days or even a year after their training. They have tremendous control, in that if they send out questionnaires, they go out as a directive and the persons involved are required to return them. Consequently, they consistently get usable return rates of greater than 85%.

Section 13 - What were the problems with the evaluation?

There were no really obvious problems that I could find in the interviews that I conducted. There was mention, at one point, that all the instructional personnel did not take kindly to the evaluation reports. Some resisted the evaluation unit more than others. Two potential problem areas are those that were listed as strengths of the program. Namely (1) the concern of the commander of the school and his support for the evaluation effort and (2) the credibility of the evaluation staff. The type of evaluation being conducted here requires a great deal of credibility on the part of the evaluators.

Section 14 - Are there special lessons to be learned from studying this evaluation?

I think that the particular lesson that might be learned from studying this evaluation would be first of all that a great deal of research design and complicated statistics are not needed for an effective evaluation. Most of the reports generated from this unit report, perhaps percentages and frequencies, but rarely go into statistical tests of significance. There's a philosophy here that the evaluator should be separate from the decision-maker and that is the way the program is structured. This program has a turnover rate for evaluators of approximately three years. The program is structured such that new personnel can come in and take over very quickly. Actually the decisions to be made are outlined in great detail and the amount of structure to the program allows personnel to come and go without too much effect. The philosophy of this evaluation stresses the practical criteria of the evaluation data, such as relevance, importance, scope, credibility, and timeliness, and emphasizes these criteria over criteria of reliability, predictive validity, etc. There appears to be an excellent rapport between the evaluation unit and the instruction unit. This might be attributed to the fact that oral reports are quite common with the evaluation unit often reviewing their findings immediately with the instructional personnel, long before it is put in writing. Instructional personnel are also included in the site visit team so that they can get a firsthand look at the program as it operates in the field.

4. REPORT OF SITE VISIT TO A MISSILE AND MUNITIONS CENTER AND SCHOOL TO INVESTIGATE THE EVALUATION OF A RADAR REPAIR PROGRAM

The _____ Radar Repair Program is one of approximately 70 courses taught at MMCS. It is a 25-week program for enlisted servicemen, many of whom have had no prior service occupation assignment. Graduates of the program may be assigned to _____ installations in Alabama, Florida, Texas, Germany, or Korea. Prerequisites for the course include full use of both hands, normal color perception, and an electronics aptitude at or above the 90th percentile for all recruits. The course is taught through classroom instruction and lab/workshop practice with maintenance tools and equipment. The course qualifies graduates to inspect, test, and repair the _____Acquisition Radar system and related components.

The major source of information for the evaluation of the _____ program and other courses taught at MMCS is feedback solicited from graduates of the course after their assignement to an operational unit. Each graduate is asked to complete a mailed questionnaire three-five months after assignment. The questionnaire is based upon a task analysis which is the backbone of the training curriculum. The graduate is asked to indicate how often he is required to perform each task in his assignment and to comment on the adequacy of his training for each task. The average return rate for these questionnaires is about 60%.

Two additional sources of feedback are also utilized: Rotation of instructors and on-site visits. Instructors for the _____ program are servicemen who graduated from the course and have served a tour of duty as a _____ repair technician. When new instructors are rotated to MMCS from the field, they are extensively debriefed with respect to actual job requirements and modifications needed in the training program. Periodically, a team from MMCS will conduct a tour of bases receiving graduates of MMCS courses. The purpose of these visits is to obtain a better understanding of the environment in which the graduate will be working and to hear comments on the adequacy of training from a variety of staff positions. Since many of the bases receiving graduates from MMCS are located overseas, evaluation tours are conducted only every 2-4 years.

The MMCS school is divided into three major divisions: A Training Development Division, a Training and Education Division, and a general support division. The Training Development Division (TDD) has responsibility for the development and updating of task analyses which, in turn, serve as the content base for courses taught at MMCS. The Training and Education Division (T&ED) has the responsibility for the actual conduct of training. This division plans and implements methodologies for content specified by the Training Development Division. The Training Development Division also designs measurement instruments for MMCS courses, but T&ED makes decisions concerning acceptable student standards.

The mail survey program and the site tour program are both Training Development Division activities. An annual report based upon the findings of these activities is submitted to the Training and Education Division. Both divisions make extensive use of returning instructor debriefings.

The Training Development Division consists of 58 persons with 15 persons devoting full or substantial time to task analysis and course evaluation based upon graduate feedback. The director of the division and most of the professional staff have graduate training in educational psychology, instructional systems, or some related field. Most of the professional positions are filled by civilian.

The greatest weight in curriculum development evaluation is given to the task analysis conducted by technical experts persons who have performed the job in the field. The mail survey is used primarily to confirm this task analysis. The evaluation process seemed very mechanical and automatic, but none of those interviewed seemed a strong advocate of the system (with the exception of the returning instructor debriefing).

The type of data collected for evaluation by MMCS is almost identical to that collected by the evaluation unit at _____ AFB. Methods of analysis are also similar. However, the use and utility of the data in the two systems is very different.

At _____ AFB, the graduates and their supervisors are looked upon as a very important, perhaps most important, source of information for curriculum revision. Consequently, the surveys go out under a directive of the commandant and over 80% are returned. There is also a strucutre and effort to involve instructors in the evaluation and to see that evaluation results are considered in course revisions.

At MMCS. the motions of evaluation were similar, but not one seemed to consider the effort or the findings very important. Instructors received an annual report based upon graduate surveys, but there was no evidence that the report played a substantial role in course revision. Communication between the development division conducting the evaluation and the division conducting the training was lacking.

The evaluation effort at MMCS is carried out with technical competence and is collecting potentially useful data, but the structure separating the evaluation team from the instructional team limits the application of evaluation findings.

Perhaps the lesson here is that, regardless of the technical competence or design of an evaluation, if the audience for whom the evaluation is intended does not feel that the evaluation is important, little use will be made of the findings.

5. REPORT OF SITE VISIT TO SOCIAL SECURITY ADMINISTRATION CONCERNING A MANAGEMENT BY OBJECTIVES (MBO) PROGRAM

Introduction

In reading this report and the information reported in the Program Evaluation Questionnaire for this study, it is important for the reader to know that the particular course reported is part of a broader set of offerings provided by the Division of Training and Career Development of the Social Security Administration and that in some ways the particular course is not representative or typical of evaluation procedures employed in those programs. In particular, evaluation of MBO this far is more tentative and informal and therefore less conclusive, for reasons which will be described in later sections of this report.

The Program

At the time of the visit the Management by Objectives Course (MBO) had been presented on six occasions, over a two year period to group sizes, averaging twenty-five individuals - less than 200 staff in all. Typically, the course consumes three full days of workshop activity usually spaced within a thirty day period with consulting provided as requested thereafter.

The MBO course is one of an extensive set of inservice offerings developed by the Social Security Administration to staff at all levels. The MBO course, in particular, is offered to second level supervisors and above all in Social Security Administration departments, most of the in-house courses conducted by the General Skills and Management Training Branch are not required, but offered as opportunities available to staff.

Although top level administration of the Social Security Administration has indicated an agency interest in MBO, the program was initiated by the Management and Supervisory Section with approval of Division Management.

Although program goals are presented to participants during the first hour of the workshop and in a flyer beforehand, these were not available to the writer and cannot therefore be related meaningfully to the evaluation or to this narrative. In general each participant is encouraged to develop a limited but improved set of outputs and results he would like to accomplish by certain target dates, after he has learned the jargon and read widely in the MBO literature. Parenthetically, the writer notes that in his opinion, the readings are significant and wide-ranging in application.

The Evaluation

At this stage in the development of and experience with MBO, the evaluation can only be described as informal and primarily observational.

The overriding value for the evaluation activity stems from the desire to assure the trainers, themselves, that something worthwhile for the participants is going on, rather than from any charge from above to document the impact of the effort. There are several circumstances which

contribute to the present form of the evaluation - the new body of content itself (MBO is a relatively new set of ideas), the varied backgrounds and responsibilities of staff taking the course, and finally the view (widely shared by many current users of MBO), that its potential for organizations lies in its "process", not in its particular form.

Additional comments about these matters and how they presently constrain evaluation procedures (at least in the setting reported here) will be offered in later sections of this report.

As indicated above, the evaluation is conducted in-house by members of the training staff. Although it was not the intent of the visit or this study to evaluate evaluators, it can be reported that all evaluations of courses are prepared within the agency and that no special individuals within the training staff are designated as specialists on evaluation. Probably all have experience, expertise and qualifications in their backgrounds sufficient for the conduct of meaningful evaluations.

Evaluation is conducted with funds provided for by the organizational and divisional budgets. Evaluation data are reported to the next highest management level, primarily as information for allocation decisions regarding the mix of specific training efforts.

Evaluation Methods

As indicated earlier, methods employed in this particular course evaluation were informal and observational.

At the conclusion of the course, a standard course-ending questionnaire is administered. This three page questionnaire reflects ratings on nine specifics of the course such as: the degree that courses met expectations, the degree to which the course was pertinent to needs, degree of interest, the effectiveness of the course leaders and the like. Another section of the questionnaire, the respondent to make statements about their expectations for the course, their reasons for attendance, and why the course was beneficial. In a third section, the respondent is asked to make suggestions for improving the objections, the format, the schedule, like leaders, the subject matter, the materials of instruction, the facilities, and other matters.

Rating scale positions are not operationally defined so that it is difficult to pool the ratings across groups and times or to compare them.

Approximately three months after the conclusion of the workshop, participants return for a critique session with training staff. These sessions offer training staff a further opportunity to submit suggestions for modification of course content as well as the opportunity for the trainers to see and discuss specific work products developed as a result of the course. The generation of goals, results, schedules, etc. during the workshop was referred to as simulation - at the time of the critique actual work products are available.

For some courses other than MBO, a four-page questionnaire is administered as a further follow-up evaluation to assist training staff to collect feedback for course improvement.

Given the constraints listed earlier, and consequently the focus on "feedback" as the evaluation goal for this course, the training staff report satisfaction with the informal evaluations. They indicate that the informal procedures briefly described thus far have provided them with information which was used to modify (improve) the course on each occasion it has been offered.

Finally, informal observation by training faculty is used also as a basis for course modification.

Evaluation Results and Effects

The experience with evaluation of the MBO course thus far has served to illustrate and underline several persistent problems which deserve brief descriptions here.

First, training is a staff service function not on line. On the one hand this is seen as having definite advantages for providing opportunities for learning. On the other hand, from an evaluation viewpoint the staff function removes the trainers from ongoing operations and limits almost entirely opportunities for monitoring or "process" evaluation.

Second, the organization as a whole views MBO only an an aid and takes great pains to avoid even the suggestion that MBO should take on a particular form or set of specific procedures. It is the desire of the management itself and the training staff to offer MBO as a set of broad principles, a "process", which can be applied in any way consistent with the needs and experience of various operating departments. Yet, a "process" is more difficult to measure and evaluate than a specific form or outcome. This general difficulty with the measurement of "process" coupled with severely limited opportunities to observe "process" (ongoing operations), as indicated in the previous paragraph, compounds the problem.

And finally, the problems of evaluation are further compounded by another instance of what is generally referred to as the "criterion problem" - the lack of common outcomes, in the form of behavior, indicators and work products, which could be used as a basis for the evaluation.

In short, the understandable posture the agency takes toward MBO as a technique, the limited opportunities for observation by a staff unit off line, the relative difficulty in measuring a "process" (as distinct from knowledge, products and other more discrete outcomes), and the widely varying settings within which MBO is applied, represent major constraints for evaluators in this and other settings when those characteristics come together.

A major effort presently underway by the training staff, which is an effort to catalog and map the interactions between some 500 specific occupations and exposure to specific learning opportunities, may provide some further insight into and refinement of evaluation procedures. Staff there are not optimistic, however.

It remains a fact that outcomes from learning opportunities for managers remain difficult to document when those outcomes are expressed in "process", "stylistic" and other more global terms.

6. REPORT OF SITE VISIT TO U. S. DEPARTMENT OF AGRICULTURE CONCERNING A SUPERVISORY TRAINING - PHASE I PROGRAM

The Program

_____ is an agency of some 9-10,000 employees within the Department of Agriculture. Originally the agency had both a regulatory as well as research function, and until 1969-70 had a staff almost twice the size of the present force. At present the agency has no regulatory function, and its staff consists largely of senior and junior scientists, research assistants, and the support staff necessary for these positions.

The Supervisory Training - Phase I is available to anyone within the agency who supervises other employees, and is a requirement for all new supervisors. Many of the employees of _____ have scientific backgrounds but little or no management training and/or experience. The training program is intended to develop management abilities in the supervisory personnel as well as to insinuate a particular strategy of supervision--a problem analysis approach. Entry to the program is not on a competitive basis, and, with the exception of mandating the training for new supervisors, there are no formal selection criteria. The program has been operative since 1970 and claims 3000 trainees.

The Supervisory Training Course - Phase I generally covers two 40-hour blocks and is given to all newly selected first level supervisors either before they assume their duties or as soon thereafter as possible. The program is offered at 25 sites and is said to accommodate employees from GS5 - GS15. The training groups are generally small, numbering not in excess of 20+ persons. The course is most concerned with what its framers call "Dealing Effectively with People." The course director is seen more as a facilitator than an instructor and the trainess do a great deal of interactive work in small groups. At the conclusion of the course each participant has an opportunity to complete a rather informal evaluation form indicating his feelings about the training. There is no systematic evaluation of the individual trainees.

The Evaluation

As revealed by the Program Evaluation Questionnaire received from this program, there has been very little formal or even systematic evaluation of Supervisory Training - Phase I. Since some occasional attempts to gain "feedback" were made some response to some of the items of the site visit outline seems in order. Items have in some cases been combined for convenience and in light of the brevity with which they could be covered.

What kind of evaluation, carried out by whom, who paid for?

All evaluation of STP-I has been in-house evaluation. All of these evaluations have been rather informal and conducted by program staff. The earliest "follow-up" was headed by the staff which devised the program. Subsequent follow-ups have involved, in the main, trainee reaction to the program. Although program administrative staff has

done some impressionistic rating of the program, there has been no systematic assessment of training leaders. As in-house evaluation or follow-up, all costs were borne by the agency itself.

Who were the audiences of the evaluation?

The first evaluation follow-up was actually carried out for the program developers. A secondary, implied purpose of the program evaluation was to provide some guide or format for potential students and supervisory personnel not exposed to actual training. The main objective of this effort was to help program developers "refine" their course.

What were the expected outcomes and benefits of the evaluation?

The original follow-up was stated to be an attempt to determine to what extent those who had completed the training were applying its concepts in their work settings. Presumedly, if the concepts were not taking hold, the training package would be rethought and possibly modified, if the concepts had influenced supervisory behavior significantly training would be termed successful.

What did the evaluation(s) comprise of?

The first evaluation or follow-up approximated formal, systematic evaluation more closely than did later feedback gathering efforts. In this first effort, which took place shortly after the course was devised, two pilot groups of 6-12 persons were run through sample course segments with the designer of the materials serving as course director. Certain revisions were made in the course based on feedback from these pilot groups. In addition to the pilot groups, one field site was selected for follow-up six months after the training. As was stated earlier, the purpose of the follow-up was to determine the extent to which supervisors were making use of the concepts of their training in their actual job settings. Seemingly, individuals were asked to cite examples of use of the concepts of the training, and a collection of "mini-case studies" of success was compiled. The conclusion reached was that the course was successful and would continue to be so unless there was "a substantial change in the 'type' of personnel becoming supervisors."

Was the evaluation carried out with technical competence?

There seems to be considerable doubt as to whether the term technical should be used to describe the evaluation of this program. Although those who conducted the training are probably competent trainers, there is no evidence of staff evaluation expertise.

Did the evaluation accomplish the evaluation goals?

According to the program director, the evaluation accomplished its goals. The program director readily admits that this is an impressionistic assessment.

Did the evaluation seem to help the audience for whom it was intended? Were any changes made as a result of the evaluation?

The answer here seems to be yes on both counts. The program director insists that the feedback obtained from the follow-up helped immensely and that a number of modifications were made in the program as a result.

Did the evaluation look for unintended outcomes?

Not in any systematic way. This is true since the evaluation wasn't systematic to begin with. However, since trainees gave open-ended, narrative feedback there must have been some mention of side-effects.

What was good about the evaluation?

The program director contends that the program modifications which occurred as a result of the evaluation made it most worthwhile.

What were the problems?

From the program director's perspective there were no problems with the evaluation. It seemed unfortunate that a program that would include such detailed training material would give such scant attention to evaluation.

7. REPORT ON SITE VISIT TO FORESTRY SERVICES CONCERNING A PROGRAM ON CLEAR WRITING

Mr. _____ and Mr. _____ are training specialists in the Training Section of the Division of Personnel for Forestry Services USDA in the southeastern region. The Training Section of the Division of Personnel is responsible for techincal, management, and communications training for the 3000+ Forestry Services employees in the southeastern states from Virginia to Louisiana. Training ranges from courses in the "Use of Power Saws" to "Management by Objectives" and "Assertiveness for Female Workers." Although most of the technical training is conducted by independent or government agencies under contract to the Division of Personnel, Mr. _____ and Mr. _____ personally conduct some training at the regional level in management and communications skills.

Courses are offered at both field and regional levels for groups ranging from a minimum of 20 participants to an average of 30-60. Participants may be required by their supervisors to attend a particular training course, or they may voluntarily participate. Each employee is required to undertake a minimum of 40 hours of training each year. Students are not usually evaluated directly; their participation in training is noted in personnel records.

Ninety days following any training course, a sample of 10% of the participants are mailed a follow-up questionnaire by the Training Section of the Division of Personnel. The supervisor of each of these participants is, at the same time, sent a parallel form of the evaluation questionnaire. The same questionnaires are used for all courses and are consequently very general and use an open-ended response format. A return rate of 50-75% is typical.

When an "adequate" number of questionnaires are accumulated, the training specialist reads through them, noting patterns of responses and possible revisions for future training. The questionnaires are then routed to the person or agency directly responsible for requesting or conducting the training.

Evaluation of training is required by Civil Service regulations, but no guidelines are given for the type or extent of evaluation. Some limited influence and guidelines are exerted by the National Office of Forestry Services, but, for the most part, the regional offices are autonomous and the Training Section determines the quantity and type of evaluation activities.

There is no separate budget for evaluation activities. Evaluation is an adjunct to training. Some 1.2 million dollars is spent annually by the Forestry Service for training activities.

The principal audience for the evaluation is regional management who want some assurance that the dollars being spent for training are not being wasted. A secondary audience is the instructional agency, for the improvement of course content. There are few technical aspects to this evaluation. The 10% sample is selected by a clerk given no directions for how the sample is to be selected. There is no

quantitative analysis of data, and, in many cases, no formal attempt to draw conclusions from the data other than the reading of responses by the training specialist.

The evaluation efforts have resulted in some information of the type sought by program managers. A recent trainee of the Management by Objectives course reports a cost saving of $50,000 in one year as a result of the training. For the present, the identification of such outstanding case studies is a goal and accomplishment of the evaluation.

Obviously, this evaluation effort is limited in design, analysis, and purpose. The sampling method probably does not provide an accurate picture of the effect of training for the entire population. The analysis allows evaluator and management to select those results that favor a foredrawn conclusion, and this is, in fact, one of the purposes of the evaluation.

There is some indication that the evaluation efforts of the Forestry Services' Personnel Division are continuously improving. There is planning for a system of need assessment to determine training priorities and there is an effort to have training and evaluation of training become a required part of each supervisor's annual management plan.

8. REPORT OF SITE VISIT TO JG INSPECTION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, CONCERNING AN EXECUTIVE DEVELOPMENT PROGRAM

Program

JG Inspection Service is a regulatory agency in the Department of Agriculture. It has approximately 16,000 employees. Because of the scientific nature of its mission most managers have a science or veterinary medicine background with little management training or experience. The Executive Development Program is intended to provide the basics of management principles to individuals entering the agency at relatively high GS levels (13, 14 & 15) because of their scientific training but with low management or supervisory experience. Candidates volunteer for the program and are aslected on the basis of a number of criteria including their GS rating and ratings of supervisors at least two levels above them on "potential to accept greater responsibility." In the first cycle which is still underway, there were about 450 applications of which 120 were selected for the program.

The program extends over a period of about two years with a total commitment of time of fifty-eight days. There are eight courses involved in three phases with an elaborate individual evaluation system. The evaluations are for the students information and do not go into any official file or record. Students may drop out of the program but no one is failed or asked to leave. 113 of the initial group are still participating as they go into the third phase. Following course two, which is called Self-Awareness (a modification of transactional analysis), the participants complete a lengthy self-evaluation. As each course is completed, the faculty or counselors or supervisors complete a similar evaluation for each participant. Copies of these evaluations are given to the student as a progress report. It is planned to develop a certificate of completion of the program which will be awarded to those who finish.

Evaluation

For such a carefully planned and documented program with the great deal of emphasis on evaluation feedback to participants there is surprisingly little planning or execution of a program evaluation. However, to be responsive to the charge, the questions listed on the Site Visit Outline follow with answers that are often very brief because of the nature of the evaluation.

Sections 2 and 3 - What kind of evaluation? Who carried it out?

An organization titled _____ Associates, Inc. apparently has a contract with the Department to provide consultative services in the area of management training. As part of that arrangement they cover the JG program. So far their evaluation seems to be one of trying to determine if the various agencies within USDA are in compliance with the regulations and guidelines directing them to have an executive development program. Thus, the outline of a briefing for USDA Management Council by _____ Associates, Inc. shows an evaluation of the progress the USDA agencies are making toward being in full compliance. Apparently this evaluation

was done by reviewing planning documents, interviewing those responsible for implementation and examining courses, procedures, manuals, etc. used by the various agencies.

While _____ Associates, Inc. proceeds with its compliance evaluation of all USDA agencies an individual consultant (non government) is serving as an evaluator of the specific JG Executive Development Program. The consultant was described as a psychologist who had worked for a management consulting firm and for the Federal Government's Office of Investigations. It isn't clear just exactly how he was selected but it seems that those concerned sort of just knew him and he was hired. He reports to the administrator of JG. His evaluation seems to be subjectively based on interviews with participants, faculty and deputies who do the individual evaluations and on the basis of observations of sessions in progress. His reports were not available but apparently he has passed on suggestions and made recommendations orally to the director. He is supposed to be developing or has developed a questionnaire for the participants.

When asked about an evaluation of the impact of the program on the participants' careers, for instance comparing participants to non participants, the director of the program indicated that he himself sort of planned to take care of that. He also explained that it would be difficult to conclude much about the effectiveness of the program that way because people might have been promoted anyway.

Section 4 - Who paid for the evaluation?

The Federal Government pays for the evaluation through contractual arrangements with the USDA.

Section 5 - Who were the audiences of the evaluation?

The audience of the individual evaluation was the participant group undergoing the training. The _____ Associates, Inc. work was aimed at high level USDA office with responsibility to comply with executive orders. The individual consultant work seemed intended to provide feedback directly to the program designers and administrators.

Section 6 - What were the expected outcomes and benefits of the evaluation?

The _____Associates, Inc. effort would seem aimed at producing results that would allow the department to state that it is in compliance or if not provide information to direct efforts to be so.

The individual consultant outcome seems aimed at more of a monitoring kind of goal that allows for quick adjustment in the program.

Section 7 - What did the evaluation comprise of?

There seems little that can be added here not already covered under section 2. The conclusions are not available at this time and may never be, given the kinds of things being done.

Section 8 - Was the evaluation carried out with technical competence?

Given the non scientific approach it doesn't seem possible to answer this in the sense it is asked. As far as can be told, the people doing the work have competence.

Section 9 - Did the evaluation accomplish the evaluation goals?

This can't really be answered because the first cycle isn't complete at this time. However, as far as the director of the program is concerned he is satisfied with the individual consultant's work. Presumably, _____ Associates, Inc. will at some point report that the USDA is in compliance which is the goal.

Section 10 - Did the evaluation seem to help? Were changes made?

The answer to both these questions would have to be yes. The _____ Associates, Inc. reports help implement the program by alerting USDA that certain things are or are not happening which results in changes. The individual consultant's feedback has resulted in some modifications in the program. However, the bigger question of the value of the program doesn't seem tobe being addressed.

Section 11 - Did the evaluation look of unintended outcomes?

The answer, here, would have to be: not systematically because the evaluation itself is not systematized. On the other hand the individual evaluations of the participants allow for such a wide ranging coverage that the answer would be yes.

Section 12 - What was good about the evaluation?

The ongoing professional judgment by the individual consultant allowing for prompt adjustment in the program seems worthwhile.

Section 13 - What were the problems?

It was disappointing to see the elaborate care in planning and developing the program including the individual evaluation of participants with no similar effort made to determine effectiveness or impact. The call for Executive Development Programs was issued as an edict. They are "good" per se. Why would anyone go any further and gather data that might be analyzed to conclude that the whole thing is a waste and managers come into being by a political process rather than a merit procedure?

Section 14 - Are there special lessons?

The use of high level managers in some of the participant evaluations seemed a particularly valuable device in that it makes the training program more a part of the whole agency rather than a sort of school separated from the realities of the ongoing operation. The old problem was there of not thinking through ways of evaluating the effectiveness or impact of a program resulting in a little fuzziness in answers to questions about how it will be known if the whole thing did any good. Of course, transactional analysis is good for better managers. How could anyone question such a thing?

9. REPORT OF SITE VISIT TO _____ INN UNIVERSITY CONCERNING A FOOD AND BEVERAGE MANAGEMENT PROGRAM

The agency administering the program and evaluation was the _____ Inn University (_IU), a corporate supported institution whose primary goal is the upgrading of _____ Inn staff with the ultimate expected outcome revealing greater efficiency in overall operations and thus an improved profitability picture.

The program being administered at the time of interview was entitled Food and Beverage Management (FBM). It was designed to provide a thorough exposure for all phases of the food and liquor operation of _____ Inns via a variety of instructional approaches. The class size attending the current program consisted of 35 participants from almost as many states. The Food and Beverage Management Program was designed and developed by staff personnel at the _____ Inn University, _____, Mississippi. The programs offered by _IU vary in length and extend from one week to four weeks, contingent on the type and design of the program. The ultimate goal of each program is to help develop and extend the "expertise" of each program participant to insure a greater efficiency of operation on their own site.

Students are evaluated by a variety of measurement techniques. These include paper and pencil tests, performance tasks, and an ongoing subjective evaluation by the team of instructors.

The evaluation of the participants is initiated through the use of a paper and pencil pretest. This instrument is administered to all _IU participants prior to their formal classroom instruction and then is readministered at the completion of the instructional program. The program evaluators are primarily interested in raw score gain as revealed by the pretest-posttest administration and consider the participant and program a success if a net gain between the two tests is noted. The goals of the evaluation include a comprehensive review of course content for applicability in the field, a profile of individual and group growth, and a determination of the relationship of the instructional program to the objectives of the Food and Beverage Management Program.

The evaluation of the Food and Beverage Management Program participants was basically carried out by the classroom instructors. The instructors were selected because of their expertise, experience, interest, and ability to communicate quite easily and effectively with others in both formal and informal instructional settings.

For this particular program the instructors/evaluators selected were all _IU staff members and represented in-house personnel.

Evaluation is an integral part of each program design and as such is financed in the same way the "University" is financed. As part of the corporate policy as defined by the International Association of _____ Inns, each Inn is assessed one cent per room per day to maintain the "University." This revenue, which is yielded by both

corporation owned and franchise owned Inns is sufficient to maintain the present staff development and training programs. In addition to the assessed revenue, each participant in a _IU program pays for room and board while in attendance.

The evaluation results for each program are summarized and shared with members of the corporate board. This information is also presented in appropriate corporation publications for circulation to all Inn-keepers. In addition, individual evaluation information is provided to all appropriate franchise owners who sent a participant(s) to attend the _IU program. Participants of each of the programs are also continuously provided information regarding their class performance and achievement.

To the corporation, the expected outcomes for having staff and franchise owners attend voluntary or mandatory _IU programs are directly related to the improved efficiency of Inn operation. The corporation has assumed the responsibility of personnel training and through their _IU program supports the franchise owner by designing and implementing staff development programs. The program developers and staff benefit directly from the evaluation by reviewing individual and group reports and interpreting the results in light of the program objectives and goals.

The evaluation of the Food and Beverage Management Program consisted of a pre and posttest (same form) administered to all participants and unit tests designed by the teaching staff referred to as criterion examinations (CE). The objectives for the program were behaviorally stated based on the approach used by Mager and the unit tests were totally based on course content. In addition to the paper and pencil tasks, the participants were also evaluated on the degree of skill displayed in the use of a variety of business machines they were taught to operate. Rounding out the participant evaluation process was the completion by each instructional staff member of a Participant Evaluation form dealing ith affective evaluation. On this form eight categories are defined with a scale range of from 1-5 for each category.

The overall design for the evaluation program was developed through the utilization of a team approach. Instructional staff members were responsible for the development of the pre and posttests and the unit tests. Both Mr._____ and Mr._____ of the _IU's Educational Department were involved at a review level for all measurs developed and used. Mr._____ developed the Participant Evaluation form specifically for the _IU programs. All measures developed were used without benefit of field testing and limited analysis of both individual and group data was evident. Provisions for both individual and summative item analyses have just been arranged and presumably should be quite beneficial when used with future programs.

The design of the Food and Beverage Management Program incorporated seven inter-related units to be covered by the instructional staff. These included: Employee-Employer Relations; Cost and Controls; Advertising and Promotions; Restaurant Operations; Banquest and Meeting Rooms; Bar Operations and Standards; Goals and Awards. Each unit presented had a criterion examination (CE) developed specifically for its course content and each unit test was reviewed completely with the participants following the administration and scoring.

Instructional staff members as well as central office supervisory personnel believe their evaluation design to be an effective one. Their expressions are based on the evaluation program satisfactorily meeting the evaluation goals of expanding and refining necessary management level hotel skills so that a greater efficiency of Inn operation will be obviously notable. Hotel procedures have been carefully studied by _IU supervisory staff so that course content and evaluation measures reflect current practices. The director said of the evaluation: "...we were able to draw some conclusions from the overall evaluation which should provide direction for an action plan."

The evaluation pointed out quite significantly the wide range of experience and expertise that the participants brought to the _IU program. In terms of course content this might suggest an individualized approach for some participants and also suggests the possibility of grouping for instructional purposes. Both of these alternatives are being considered for possible introduction in future courses. The evaluation program for participants helped to identify on a daily and unit basis individual strengths and weaknesses, and for instructional staff indicated areas of the instructional program requiring review and possible revision.

There was no intent on the part of the evaluation program to lock for anything but program outcomes originally indicated by the evaluation design; however, interaction meetings between participants and instrucational staff were responsible for the earlier reduction of the Food and Beverage Management Program to a four week period of time rather than the previously established five week program.

The primary function of the evaluation design was to help assess how effective the Food and Beverage Management Program was in better preparing the participants to operate with greater efficiency the "Inns" entrusted to their management and supervision. The evaluation appeared to measure the attainment of certain necessary skills and the acquisition of certain pools of information as predetermined by the education department with the assistance of the instructional staff.

Both participants in the interview raised questions about the design of the paper and pencil measures developed for use as unit tests by the instructional staff. Some additional questions were raised at this time regarding the reliability of the instruments used but further questioning revealed no future action was being contemplated to improve the reliability picture.

Several options are open for consideration in terms of developing higher reliability of test measures. One suggestion would be to enlist the aid of outside experts to assist in the building of the unit examinations. Field testing of the measures including an item analysis should be undertaken by the _IU staff to determine statistically what items should be included in the criterion test measures. Again, outside expertise should be utilized if deemed necessary.

If the evaluation program were to be physically extended to include an on-site visitation of selected programs participants for the purpose of determining the effective application of the program content, the feedback might realistically support _IU findings or provide _IU instructional staff with insights for program modification.

If one may take the liberty of generalizing from an interview it would appear judicious for organizations developing evaluation programs to seek outside professional assistance if the talent required does not reside or is not available from within the organization. This action will serve two functions: that of providing a professional quality to the overall evaluation program and secondly, to allow for an interchange of ideas, values, etc. between internal and external professionals.

10. REPORT OF SITE VISIT TO XYZ CONCERNING A SALES FUNDAMENTALS PROGRAM

The Program

The Sales Fundamentals Program (the course, I was informed, is actually referred to as "Effective Presentation of Ideas") is one of more than 30 recurring training and development programs offered by XYZ's Employee Development Department, which is a department within the Division of Personnel and Industrial Relations. The Department is responsible for providing development and training assistance to all departmental units within XYZ. The three staff members of the Department either conduct training sessions themselves or else train instructors at various locations to conduct programs they have prepared.

The Sales Fundamentals Program, like all other training programs provided by the Employee Development Department, is conducted by request only. Contrary to what the course name may suggest, the program is not just for new sales personnel. Mr. _____ indicated that course participants are, for example, sometimes employees of companies that have been newly acquired by XYZ. Course participants may have had, therefore, extensive sales experience (some up to 20 years).

Courses are requested by executives in other departments or divisions for personnel whom they supervise. Mr. _____ said that requests are made on the basis of personal relationships. That is, executives request courses for their employees simply because they know Mr. _____ and are familiar with the services he offers. In the words of Mr. _____, it's a "you scratch my back and I'll scratch yours" kind or arrangement.

The Sales Fundamentals Program has been offered since 1960. Mr. _____ has been in his present position for two years. During his tenure the course has been updated (part of it is brand new). He estimates that 1000 trainees have participated in the course since its inception.

The course consists of 16 hours of in-class time usually divided into 2 eight hour segments or sometimes 4 four hour parts. Mr. _____ showed me the objectives of the program, which are presented to students as part of a slide presentation. (The course relies heavily on a multi-media approach.) The objectives are:

1) To provide each participant with a perfect standard for selling.

2) To develop a vocabulary for selling.

3) To acquire a knowledge of the basics and fundamentals of selling.

4) To give a new insight to true product knowledge.

5) To be able to teach others.

Mr. _____ realizes that these objectives are broad and general and, he thought, noncontroversial ("motherhood and apple pie").

The Evaluation

The evaluation that is carried out consists of student participants completing a Program Evaluation Form at the end of the course. The idea for using the form was Mr. _____'s. There was no directive for evaluation issued by a supervisor.

Mr. _____ sees the evaluation in a number of interesting ways. He stated quite frankly that one of the major purposes was to justify his yearly raise and "to show my boss (the Vice President for Personnel and Industrial Relations) how good the program is." _____ showed me tabulations based on a number of program evaluation forms. The results are, in general, very positive suggesting the _____ objective has been accomplished.

In line with justifying his yearly raise, Mr. _____ showed me his "ego file," which contains supportive letters from course participants or from their supervisors. _____ indicated that letters of this nature are quite frequent. That is, about four of every five times they conduct a course, he gets a letter -- usually from the executive who requested the course.

Another purpose in conducting the evaluation is to get feedback on the performance of the people that he supervises -- i.e., their effectiveness in presenting the programs. In this regard, _____ feels that he has succeeded in "getting an overall feel for departmental effectiveness." On the other hand, he suggested that the Vice President (to whom he provides monthly summaries of his evaluation results) "doesn't even look at them."

Mr. _____ seemed to think that the evaluations were somewhat useful to him and his three-man staff in making modifications of courses. Suggestions from course participants have also been used as a basis for the development of new programs such as the Advanced Sales Program.

From participants comments _____ has also learned some things which he considered to be interesting. For example, from comments such as "Why don't you give our bosses the same training?" he has realized that his efforts have been directed almost exclusively at lower and middle management. As yet, however, upper level management personnel have still not participated in courses.

In talking about problems associated with the evaluation, _____ mentioned that he had been very successful in getting participants to return the evaluation forms. He estimated that "99%" of them return the forms. He was, however, somewhat disappointed in that he felt that his efforts may have degenerated into more of a popularity contest than an evaluation. With regard to the comments that participants make, _____ mentioned that the comments made by first-time participants are usually less valuable than those made by employees who have participated in previous programs. _____ speculated that the reason might be that first-time participants are not aware that they are expected to make suggestions at the end of the course. He thought that he might mention this to participants at the beginning of future courses.

It was clear in talking to Mr. _____ that his evaluation efforts are not directed at assessing the performance of course participants. In fact, student evaluation is something that avoids "rocking the boat." He did mention that he is sometimes asked by a course participant's supervisor to make subjective comments about the participant's performance in the course. It appears, however, that these requests are infrequent.

When we talked about outcomes of the program, _____ mentioned that it would be possible to formulate more objective criteria for program success, e.g., increase in sales volume. However, he was extremely reluctant to do so, indicating that he might be "cutting his own throat" if the evaluation showed no significant impact on sales.

With regard to establishing performance criteria, _____ showed an awareness of some of the problems in using such criteria. For example, he mentioned that a number of other variables (the state of the economy, e.g.,) would make a criterion such as increase in sales less useful because of their effects.

Regarding _____ qualifications, he has had 14 years of industrial training experience, and has a master's degree in guidance. The two trainers whom he supervises have each had five years of training experience as well as master's degrees in education and industrial psychology.

In summary, the evaluation focuses on improving courses and on assessing the performance of the department that offers these courses, not on the students that participate in them. Notable was the fact that the evaluation was self-initiated. Probably the most interesting thing about this evaluation effort, however, is the motivation of the evaluator and his acute awareness of the implications that any comprehensive evaluation might have.

11. REPORT OF SITE VISIT TO ABC CORPORATION OF _____, OHIO CONCERNING MANAGING THE MANUFACTURING OPERATION PROGRAM

Section 1 - What is the program like?

The program, Managing the Manufacturing Operation, is one of five units developed by John _____, Manager of Education and Training for ABC Corporation of _____, Ohio. Each of the five units will be presented once during each quarterly interval and since each unit is autonomous they need not be attended in a prescribed sequence. Four of the units run three days and the fifth unit runs four days.

The program itself was created for use with Division General Managers, plant managers, and department heads. These individuals were selected from a national base of company volunteers and recommendations.

A steering committee comprising four group vice-presidents, four general managers, an individual from the research center, and the assistant to the comptroller, was established and functioning from the outset of the program's initial development stages.

The primary goal of the program was to provide a general background of information required of management level individuals who at some future time would be considered for higher management level positions.

No formal participant evaluation program was developed, however, the participants were requested to evaluate the program unit(s) they attended.

Section 2 - What kind of evaluation(s) were carried out?

To evaluate the program, Managing the Manufacturing Operation, a program evaluation form was employed. In addition to this form spanning the overall program, specific presentations were critiqued following their completion. No attempt to statistically summarize findings has been initiated nor is one planned.

Section 3 - Who carried it out?

The program evaluation was carried out by John _____, who was self-selected by virtue of his present organizational responsibility. He has been employed by ABC for six years, is a college graduate, and has extensive experience in plant/employee relations. The program design and evaluation was an in-house function.

Section 4 - Who paid for the evaluation?

The design, administration, and other related costs were paid for through the use of corporate funds allocated by budget items for this purpose. Plants or other installations who sent participants were required to cover all travel and subsistence expenses for those individuals.

Section 5 - Who were the audiences of the evaluation?

The primary audience for the evaluation was the manager of Education and Training. His reactions to the overall evaluation were provided to the steering committee upon completion of the program. The manager of Education and Training also provided, upon completion of the program, informal evaluations, comments, etc. to supervisors of some selected participants.

Section 6 - What were the expected outcomes and benefits of the evaluation?

Expected outcomes were identified as expanding the participants' basic conceptual development regarding general management responsibilities and the creation and identification of a human resource pool from which individuals could be selected for promotion within the corporate structure.

Section 7 - What did the evaluation(s) comprise of?

The evaluation of the program consisted of the completion of one paper and pencil questionnaire consisting of nine items by all participants and informal discussions with participants following a number of class presentations. Consensus of participants' opinions, as shared, would seem to indicate that the overall program was viewed as a positive experience.

Section 8 - Was the evaluation carried out with technical competence? If not, what went wrong?

The evaluation of the program did not include a statistical analysis of data but rather, relied heavily upon the participants' objective responses to the evaluation questionnaire and to the discussions and expressions following the class presentations.

Section 9 - Did the evaluation(s) accomplish the evaluation goals?

The feeling expressed by John _____ was that based on questionnaire responses and participant reactions, the evaluation goals developed for the program were realized. As perceived by John _____, all participants benefited to some degree by involvement in the program.

Section 10 - Did the evaluation seem to help the audience for whom it was intended? Were any changes made as a result of the evaluation?

The program evaluation appeared to be acceptable to both the steering committee and the education director. As a direct result of the interactive classroom evaluation, one classroom presentation directly concerned with financial reporting was considerably modified to more adequately meet the needs of the participants. No other program changes were noted as a result of the evaluation.

Section 11 - Did the evaluation look for unintended outcomes (program side effects)?

Surfacing from the interactive classroom evaluation was the participant perception of the corporate structure being much too centralized. Participants expressed a strong desire to be involved in policy making decisions, operational decisions, etc., that would ultimately effect their installation. While the evaluation design did not originally incorporate identifying unintended outcomes, they were in fact noted and transmitted to the steering committee.

Section 12 - What was good about the evaluation(s)? Was there anything quite noteworthy?

John _____ reported that the participants' responses as noted in the evaluation questionnaire, were candid and directly on target. Their suggestions regarding instructional presentations were influential in the modification of specific presentations for future consideration and use. The evaluation helped to establish credibility by effecting program changes as a direct result of the participants' feedback.

The evaluation did indicate a further need for additional measurement instruments to be developed and incorporated into the overall program evaluation design.

Section 13 - What were problems with the evaluation(s)? How could they have been overcome?

The evaluation questionnaire which was the only paper and pencil source document was primarily designed to record participant perceptions regarding the areas of program administration, facilities, etc., and did not focus on the substantive portions of the program. It was difficult to ascertain how productive the instructional sessions were because of the non-use of additional measurement instruments.

Section 14 - Are there special lessons to be learned from studying this evaluation?

Following the conclusion of the program, and the collection and analysis of the evaluation questionnaires, John _____ noted several ways to improve his evaluation process:

. . .Future program planning must incorporate to a much greater degree the definition of program parameters by objectives rather than by descriptive rhetoric.

. . .Input from the field must be more representative, so that program content can be reflective of participants' perceived needs.

In concluding, John _____ commented that much more lead time was required for the planning of a program that was available to him, and believes the overall effectiveness of the program/evaluation would have been much more positive with greater lead time.

12. REPORT OF SITE VISIT TO _____ COMMUNITY COLLEGE, _____, FLORIDA CONCERNING A MEDICAL LABORATORY TECHNICIAN PROGRAM

I met with the Dean. He was interested in our study and considers evaluation an important activity in his college. I also spent a considerable amount of time with Dr. _____, who is chairman of the Health Related Programs.

Program

This is a two year program leading to an associate in science degree. Goals (objectives) are didactic and clinical. Students are evaluated by tests, performance examinations (lab techniques), and simulations (in work settings--local hospitals).

Evaluation

A self-study was conducted by an eleven-person committee over a three month period. Committee included insiders and outsiders.

Instruments

An evaluation form was used by the persons who supervised the students in the field. It looked like a good evaluation form.

Miscellaneous

They seem satisfied with their evaluation activities. They intend to include students and consumers of health services on the evaluation committee in the future.

The program only began in 1969 for the _____ Florida area. There are about fifteen to twenty students per year. Graduates take the MLT examinations for licensure and the National Registry Examination which allows use of the initials MLT (ASCP) after the name. ASCP is American Society of Clinical Pathologists.

The evaluation was carried out to prepare for accreditation. So, we should consider it shared with us in confidence.

The Florida Community Colleges are making a strong effort at identifying behavioral objectives based on job analyses in the field.

Feedback from job supervisors is considered very important and is used in evaluating and changing the MLT program.

Overall Goals

. . .To provide a self-contained two-year training program which will bring the student to a realistic level of training to meet the needs of employers in the _____, Florida area.

. . .To make the student adaptable to change and aware of his limitations.

Conclusion

The committee concluded that graduates are adequately trained. All graduates have obtained rewarding jobs. Math preparation of students is weak and not really practical for their work. Math requirement has been broadened as a result to include a course in chemical calculations as an option for college algebra. Nedd for more clinical training has been identified. Clinical practicum is being lengthened to a full year as a result.

13. REPORT OF SITE VISIT TO _____ COUNTY AREA VOCATIONAL EDUCATION CENTER, _____, KENTUCKY CONCERNING AN ENVIRONMENTAL AIDE PROGRAM

General Description

The Environmental Aide program is a one-year vocational training program which is offered at the _____ County Area Vocational Education Center in _____, Kentucky. It was developed to train assistants or aides to work under the supervision of professional, scientific personnel in environmental control type occupations. The program, operational since May 1971, is accredited by the Southern Association for Accreditation of Schools.

Funded under the Manpower Development and Training Act, the program provides both theoretical and practical experiences which prepare trainees for employment in the following occupational areas: soil conservation, public health, sewage treatment, water treatment, solid waste disposal, and air pollution control.

Training is divided into two phases. During phase one, students receive classroom training covering skills and knowledges required to do routine work as required by the affiliating agencies. This phase includes classroom lectures, laboratory procedures, field sampling, and analysis.

Trainees, who have successfully completed phase one are placed with affiliating agencies who accept them for supervised work experience on a rotation basis. During phase two, trainees spend four days a week with the agencies involved and one day back in the classroom for reviewing work experiences, recording data and information, and planning. The instructor makes periodic on-site visits to the affiliating agencies in order to coordinate this phase of training and to check on trainees' progress.

Entry into the program is initiated by recommendations from local Economic Security agencies in Vocational Regions 1-5 who screen prospective trainees to assure that they have acceptable GATB scores in accordance with established occupational criteria. The program coordinator and instructor interview prospective trainees before formally admitting them to the program.

There is only one class in the program and it has a regular enrollment of 18-20 trainees. The class meets weekdays from 8:00 a.m. to 4:00 p.m., 40 hours per week, and 50 weeks per year. Altogether the program provides the trainee with 2,000 training hours--1,200 in phase one and 800 in phase two.

Program Background

The need for trained personnel in the area of environmental control has been emphasized by new governmental guidelines and requirements placed upon industrial operations in an attempt to control and improve environmental conditions. In establishing need for the environmental training project, the project proposal stated:

> There presently exists an alarming increase in the pollution of our nation's water, soil, and air, which has made us aware of the critical manpower shortage at the professional and subprofessional level who are well trained and have special skills and knowledge to deal with these problems in the field or in the laboratory (p. 2).

The proposal noted that the western area of Kentucky has large coal fields, vast water impoundments (_____ and _____ Lakes), in addition to local and/or regional projects such as watersheds, mines, and solid waste disposal, which made it an ideal location for environmental training. The proposal identified a need for persons to be employed as an Environmental Aide to assist the various agencies that had plans to expand their control and operation in the area of environmental control. Also the proposal established that various governmental agencies already involved in environmental control in the geographic area were willing to lend assistance for the development of course materials and for affiliation of trainees in a cooperative training project.

In response to needs identified above, the Regional Director of Vocational Education (Mr. _____) held a meeting with local agencies to determine if an Environmental Aide training program was needed and feasible. As an outcome of the meeting, a special committee was formed to directly involve the agencies that would participate in the development of the project, along with state, regional, and local consultants. Subsequent meetings resulted in the establishment of criteria for occupational needs and project development.

The committee identified tests, procedures, techniques, and theory needed to conduct the program and the facilities, equipment, and materials required. The curriculum developed was designed to be relevant to the needs of participating agencies. In addition, the agencies involved further agreed to participate in the program by making available special materials, instruction, and on-the-job work experience for students.

Geographical boundaries for the program and the rationale for their establishment were described in project documents:

> The area includes the region west of a line from Louisville, south to Elizabethtown, to Bowling Green, and to the Tennessee border. It was decided that this area would prevent an over saturation of students compared to jobs. Also, by covering an area this large, we could include a more diversified kind of program due to all the different kinds of process in the area (p. 2).

Further information regarding major areas of potential employment for environmental aides were identified in the document. These included positions in: the *Soil Conservation Service*, a governmental agency which had a classification for employees on the assistant level; *County Health Department*, located in each of the 40 counties included in the geographical boundaries of the program; and *Sewage and Water Treatment Plants*, located in the 75 municipalities of the program.

A project proposal for Environmental Aide training was prepared and submitted to the U. S. Department of Health, Education and Welfare on August 8, 1970. Approval was granted and the program became operational in the early part of May 1971.

Instructional Program

The Environmental Aide program is one of 44 vocational training programs serving over 9,000 post-high school students in Vocational Region 2 (_____) of Kentucky. Class enrollment is limited to 18-20 students from Vocational Regions 1-5. At the present time, there is an open-entry, open-exit policy in the class to accommodate early completors and allow them to be replaced by other persons who wish to enter the program. Thus far, 52 students have trained in the program; approximately 81 percent of enrollees have been successful completors.

Instruction includes formal classroom teaching, programmed instruction, multimedia usage, small group discussion, individualized instruction, practical laboratory/workshop experience, and supervised on-the-job experience. Of these, individualized instruction, particularly with the open-entry, open-exit program policy, is considered to be the most important.

Various types of evaluation techniques were utilized to measure student achievement. These included paper-and-pencil tests (instructor-developed in addition to commercially prepared tests),overall subjective rating by the instructor, instructor ratings of performance and/or products made during the course, performance examinations, oral examinations, and evaluation by supervisory personnel in the job affiliation phase of the program. The evaluations received by trainees in their job affiliations were considered most important.

Program Evaluation

Evaluation Background

The Environmental Aide training program was evaluated in 1972, 1973, and 1974. At the time of the interview, general information was available concerning the three annual evaluations which were conducted and specific information was available for the 1973-74 evaluation in a final report.

According to governmental requirements, contractual provisions for evaluation were included in the project proposal as follows:

> A brief written evaluation of the project which includes assessment of: local administration, instruction, supervision, trainee achievement and placement, and recommendations for improving the project will be submitted to the State agency by the local supervisor within 30 days after the completion of the project or at such other times as the State may request (p. 8).

Evaluations Conducted

The yearly evaluations conducted for the Environmental Aide program which were all the same utilized four MDTA-developed instruments: MDTA Former Student Follow-Up, Employers Follow-Up of MDTA Trainees, MDTA Instructor's Project Evaluation, and MDTA Supervisor's Project Evaluation. The final evaluation report prepared for the project included tabled data from the follow-up mail surveys of former trainees and their employers plus a narrative description of the data and the instructor's and supervisor's responses to the two MDTA evaluation questionnaires. More detailed information about the evaluation will be provided in a later section.

Evaluation Model, Goals, Values

Model. Although no model for the evaluation conducted was formalized, the evaluation could perhaps be roughly described as discrepancy evaluation. The information sought in the MDTA instruments sought to ascertain the extent to which the program was fulfilling its function--that is, training students to function effectively as environmental aides and providing environmental control agencies with trained personnel.

The goals of the evaluation were to measure program impact and to improve program effectiveness. The follow-up mail survey of former trainees and their employers attempted to measure program impact; all instruments used in the evaluation contained items which sought to identify specific aspects of the program which could be improved.

The evaluation yielded both hard data concerning the employment of trainees (number employed, type of employment, job duties, and salary received) and subjective data utilizing the opinions and judgments of former trainees, employers of former trainees, program instructor, and program supervisor on a number of program variables.

Values. The evaluation conducted was intended to fulfill the contractual agreement included in the project proposal for a "brief written evaluation of local administration, instruction, supervision, trained achievement and placement, and recommendations for improving the project." Utilizing MDTA evaluation instruments, the evaluation sought to involve various categories of persons who could provide different perspectives concerning the implementation and effectiveness of the program.

Evaluators

The evaluation was conducted by the program instructor and program coordinator as part of their job duties. They were selected to perform the evaluation because of their involvement with the program. Their evaluation activities consisted of completing the MDTA instructor and supervisor evaluation questionnaires, conducting the follow-up mail survey of former trainees and their employers, preparing tables and describing findings, and assembling the final document.

The backgrounds of the program instructor and coordinator were vocationally rather than research-oriented. The instructor had a B.S. degree in agricultural sciences and six years of program-related work experience. The coordinator had a B.S. degree in industrial education and three years of occupational experience.

Funding. Evaluation costs were internally funded. Provisions for evaluation were specified in the proposal and were considered part of the project budget costs.

Evaluation Audiences

There were a variety of audiences of the evaluation of the Environmental Aide training project. These included personnel from the Department of Health, Education and Welfare; the State Bureau of Vocational Education including the Division of Vocational Program Development and the Division of Interagency Relations; and the Director of Vocational Region 2. Other audiences from education included the principals of shop vocational schools, other local school principals, and the regional program coordinator. Program trainees and affiliating agencies were other concerned audiences of the evaluation.

Expected Evaluation and Outcomes

It was anticipated that the evaluation would provide relevant feedback concerning the employment of the former trainees. Of particular interest was the type of environmental control agencies at which the former employees were employed, the level at which they functioned, and how well they performed on the job. It was also anticipated that the evaluation would provide guidelines for curriculum improvement.

Evaluation Descriptions

The evaluations conducted were identified in an earlier part of this report. A more detailed description follows:

1. *Follow-Up Survey.* A mail questionnaire survey of former students and their employers was conducted, as required by MDTA regulations. The student survey which consisted of four mailings conducted at two-week intervals was conducted one month after the end of class. The follow-up of employers consisted of only one mailing which was conducted six weeks after class had ended. Responses to the survey were tallied and statistical tables were produced. A narrative explanation of the tables was then prepared.

2. *Supervisor's Project Evaluation.* The MDTA evaluation form requested data concerning project enrollment and included 19 questions addressed to the project supervisor, eliciting both information and subjective judgment. The items related to program implementation, instructional practices, adequacy of facilities, equipment and supplies, student services offered, and suggestions for program improvement.

3. *Instructor's Project Evaluation.* Sixteen questions to be answered by the instructor were included on this MDTA form. The items, which elicited both information and subjective judgment, related to training objectives, instructional methods and techniques, training aids, adequacy of facilities, equipment and supplies, student evaluation, and project improvement.

4. *Final Evaluation Report.* The final evaluation report did not include any formal conclusions section. However, several conclusions concerning various program aspects were recorded in the instructor and supervisor evaluation forms: (1) the high rate of job placement was the greatest strength of the program; (2) the section on soil conservation should be omitted from the curriculum due to the lack of available jobs in that area; and (3) classroom supervision should be arranged during the job affiliation phase of the program, while the instructor was engaged in agency visitations.

Technical Competence

As noted previously, the instruments and procedures used in the evaluation of the Environmental Aide training program were required under MDTA guidelines. The evaluation was essentially a descriptive study of the program and its impact. Evaluative judgments were based on the subjective opinions of program instructor and supervisor.

The variables measured by the MDTA instruments had obvious relevance to the purpose of the evaluation. The former student follow-up questionnaire, however, did not include items that should have provided additional useful information, such as: how often on the job did former trainees use the knowledge and skills acquired in the program; how related to the job was the training received, and how long had students served in their jobs. Also, no follow-up of dropouts was conducted. The evaluation report itself consisted only of an assemblage of documents and did not include any interpretation of the findings.

Accomplishment of Goals

The Director of Vocational Region 2 expressed satisfaction with the evaluation and considered that it had accomplished its goals. The evaluation provided data on job placement of trainees, information on their employers, and other program and job related information. The evaluation also identified program and curriculum areas for program improvement.

Usefulness of Evaluation

The high rate of trainee placement disclosed by the evaluation helped provide assurance to those closely involved with the program (coordinator, instructor, trainees, and job affiliation agencies) that the program was on the right track. The evaluation did lead to changes in curriculum, instruction, and program enrollment practices.

The curriculum unit on soil conservation was drastically reduced because of lack of jobs in that area. In addition, an adjustment was made in the allotment of program hours--more time was apportioned to the job

affiliation phase and less to classroom/laboratory work. Also, trainees no longer had to spend a year in the program. They could be awarded a certificate of achievement based on instructor judgment of their competence at any time during the program. This open-entry, open-exit policy made it possible to accommodate more trainees and to increase the cost-effectiveness of the program.

Unintended Outcomes

The evaluation did not focus on any program side effects. Follow-up of the program dropouts might have yielded useful information on side effects. The district is planning to do additional follow-ups of former trainees one, three, and five years after program completion.

Positive Aspects of Evaluation

The most noteworthy aspect of the evaluation was its input of different points of view. These included employers, former students, the instructor, and the supervisor.

Evaluation Problems

Several problems concerning the evaluation were identified by Mr. _____, the Director of Vocational Region 2. A higher rate of return of survey questionnaires might have been achieved if further attempts had been made to trace and follow-up nonrespondents. Also, the follow-up of former trainees and their employers conducted four and six weeks after program completion was too short a period of time for valid appraisals to be made. However, the timing of follow-up was specified by governmental regulations. As noted above, the district plans to do three additional follow-ups--one year, three years, and five years after program completion.

Special Lessons to be Learned from Studying Evaluation

The most obvious lesson that can be learned from this evaluation is the importance of its role in measuring program impact and in identifying areas for program improvement. Other lessons that can be learned are the importance of: effective timing in conducting a follow-up; establishing procedures for keeping up-to-date mailing addresses of trainees; and instituting different types of follow-up procedures for nonresponders.

14. REPORT OF SITE VISIT TO _____ TECHNICAL INSTITUTE, _____ WISCONSIN CONCERNING A PLASTICS TECHNOLOGY PROGRAM

General Description

The Plastics Technology program offered at the _____ Technical Institute in _____, Wisconsin, is a relatively new program which has received accreditation from the Wisconsin Board of Vocational, Technical and Adult Education. The program which became operational in the 1971-72 school year is a two-year technical training program leading to an Associate Degree.

The program provides enrollees with a comprehensive background in the technicalities of plastics as well as the fundamentals of operation. In addition to the courses in the theoretical and practical aspects of plastics, the curriculum includes courses in general education as prescribed by the Wisconsin Board of Vocational, Technical and Adult Education. These include technical mathematics, technical science, communication skills, psychology of human relations, methods of supervision, economics, and American Institutions.

District 11 _____ is the only VTAE district in the State to offer an associate degree program in plastics technology. The program is offered only at the _____ Technical Institute in _____ which has an open admissions policy for entry into the program. Enrollees are generally required to have a high school diploma or its equivalent. All enrollees pay registration and special course fees. Tuition is free for District 11 and other state residents; non-state residents are charged tuition to cover instruction costs.

Enrollees consist primarily of students residing within District 11. The district presently comprises two counties-- _____ and _____, each of whose population was reported over 80,000 in 1970. The populations of both counties have shown a steady increase over the past decade and their projected population by 1980 is 87,722 for _____ County and 93,957 for _____ County.

Approximately 40 percent of the student body at the _____ Technical Institute in _____ are recent high school graduates and approximately 60 percent are employed adults or veterans. The average age of the students which has shown a steady increase is now about 22 years. The Institute has a total enrollment of 1,344 FTEs. (A full-time equivalent (FTE) student is one who is taking 15 credits per semester.) At the time of the interview, it was reported that there were 31 FTEs in the Plastics Technology program. Of these, 26 were full-time students and the others attended on a part-time basis.

Program Background

Impetus for the program began in the late 1960s when a nationwide survey of over 4,000 plastics processing firms disclosed a serious shortage of trained personnel. The survey, conducted by a joint committee of the Society of Plastic Engineers (SPE) and the Society of Plastic Industries (SPI) in 1967, found the shortage to exist in direct proportion to the geographical locations of plastics processing plants.

A large number of plastics processing plants are located in Wisconsin, particularly in the southeastern area of the state. Within District 11, there are approximately 5,000 persons employed in the plastics processing industry. There are five major companies in the district and many peripheral industries such as those which manufacture electrical control devices, packaging products, bathroom accessories, and floor tiles.

The plastics industry, a relatively new and rapidly developing industry had urged technical education in plastics over a period of years. An article appearing in the SPE professional journal in 1969 particularly acknowledged the effectiveness of two-year training programs.

Local plastics industries within District 11 and the surrounding areas made known their needs for trained personnel through the district's field services coordinators. A state survey of need was conducted by a mailed questionnaire survey of plastics processing firms throughout the state. Information sought in the survey focused on the type of plastics operation by processes, number of employees, number of plants, present and future employee needs, type of trained personnel needed, and interest in hiring technically trained persons. Results of the survey reaffirmed the need for trained personnel and reflected interest and support for a Plastics Technology program.

An *ad hoc* Plastics Technology Advisory Committee was formed to help establish a training program. The committee included representatives of local plastic industries, District 11 administrative members, and an advisor from the State Board of Vocational, Technical and Adult Education (_____). The efforts of the Committee resulted in the identification of potential job openings in the plastics industries, formulation of a relevant curriculum, and specifications for required physical facilities and equipment. Their proposal for a two-year associate degree program in Plastics Technology was submitted to the State Board of Vocational, Technical and Adult Education in August, 1970, and was granted approval. Approximately one year later, the program was initiated.

Instructional Program

The Plastics Technology program was designed to prepare people to enter the plastics industries at the technician level. The program is intended to help meet state and local employment needs for trained personnel and to provide students with the best possible education to help insure their employment in the plastics industry.

The Institute provides prospective students in the Plastics Technology program with a general job description of plastics technicians and their typical job duties, and a listing and sequence of courses included in the program curriculum. In contrast to one-year vocational programs, the technician level program places less emphasis on manipulative skills and more on theoretical concepts.

Course descriptions and outlines have been developed for the courses in the program. Some of the courses have written behavioral objectives which are stated in the Institute's Monograph. Instruction in the program includes formal classroom teaching, individualized instruction, group discussion, multi-media usage, and practical laboratory/workshop experience.

Various types of student evaluation are utilized to measure student achievement: instructor developed paper-and-pencil tests containing objective items, essay questions, and questions involving problem solving; the overall subjective judgment of the instructor; and instructor ratings of performance and products made during the course. Another evaluation method that is used involves a simulated employment situation. Students are required to complete a project in plastics from its basic design through final production, incorporating their theoretical and practical knowledge of plastics. In addition to demonstrating their technical skills, students display their communication skills by making an oral presentation of their project to their peers in class. They receive instructor ratings on both product and presentation.

Program Evaluation

Evaluation Background

Under State law, the Wisconsin Board of Vocational, Technical and Adult Education serves as an accrediting agency for associate degree programs at the technical institute level. Board policies, procedures, and regulations are documented in its publication, *"Guidelines for Program Development and Evaluation -- Vocational Diploma, Associate Degree,"* issued July 10, 1968.

A major purpose of Board Accreditations as stated in the Guidelines has been ..."to assure ... that standards adequate to achieve a suitable technical education have been established by a legally constituted state administration agency (p.17)." The Guidelines stress that the process of state administration is one that emphasizes direction through involvement rather than imposed authority. Accordingly, district administrators and other district representatives are used in advisory capacities and the published Guidelines which specify evaluation as well as program development procedures were developed by groups composed of local school and district representatives working with state staff.

Evaluations Conducted

The evaluations conducted for the Plastics Technology program are standardized procedures used to evaluate the vocational and technical programs offered by the State VTAE districts. The evaluations of the program which were conducted are briefly described in this section. More detailed information is provided in later sections.

1. *Accreditation Evaluation.* This was essentially a process evaluation conducted at the end of the second year of the technician level program. Its goals were to help establish accreditation for the program and to help improve the program. The evaluation of the Plastics Technology program, which was internally funded, was carried out by the Wisconsin Board of Vocational, Technical and Adult Education and involved the utilization of an external team of industry and education representatives. Output of the evaluation was a formal evaluation document.

2. *Impact Evaluation.* This was essentially a product evaluation conducted to assess the impact of the program. Its focus was on student graduates of the program. It utilized a follow-up questionnaire designed by the State Board which was sent to students six months after program graduation. This evaluation, which was internally funded, was carried out by the district program developers; data processing was conducted at the State Board. Output consisted of a computer print-out sheet statistically summarizing the results. Additional follow-ups of graduates are to be conducted 2 1/2 and 5 years after graduation.

3. *Program Review.* A standardized form, *"Program Review and Development"*, is completed internally for each program at the district level. The form which is completed on an annual basis is used to provide statistical data on enrollments, staffing, and facilities, cost data, general information, and placement of graduates and noncompletors of the program. Output consists of the completed document.

The program review data is studied by representatives of the State Board and district administrative and instructional staff. The information is used to make decisions concerning program continuance and fiscal support. This form was completed for the Plastics Technology program following its second year of operation and annually thereafter.

Evaluation Model, Goals, and Values

Model. The type of evaluations conducted for the Plastics Technology program could perhaps best be described as "discrepancy evaluation", which has been defined as follows:

> Discrepancy evaluation refers to the search for differences between two or more elements of variables of an education/training program that, according to logical, rational or statistical criteria, should be in agreement or correspondance.

A state survey of need was conducted to ascertain the discrepancy between the need and availability of trained technicians for the plastics industries. This survey provided the stimulus for the development of the Plastics Technology program.

Also, program standards appearing in the published Guidelines have been established by the State Board of Vocational, Technical and Adult Education. A major evaluation effort related to program accreditation and sought to ascertain the relationship between the established standards and the actual program implementation. An external advisory committee including representatives of the plastics industry and other educational institutions was utilized to see that the program met the standards established by the Board and to identify discrepancies between actual and desirable program aspects. The student follow-up was also intended to help identify discrepancies between desirable and actual program effects. Both the impact and program review evaluations identified previously were intended to ascertain that the program was fulfilling its function according to established program goals and cost-effectiveness criteria.

Goals. The goals of the evaluation were to establish program accreditation according to established standards and to identify program areas in need of improvement. In addition, the evaluations sought to determine whether the program was fulfilling its function, that is, providing the plastics industry with adequately trained personnel and training students to function effectively as plastics technicians.

Values. Basically, the State Board sought to involve in the evaluations all levels of district and school personnel, as well as attending students and program graduates. Also, the Board made a concerted effort to obtain a broad perspective of the program from the viewpoints of industry and education by inviting a select group of representatives from these areas to serve on the evaluation committee. In addition, the accreditation evaluation was used to provide training for several new administrative staff members.

Evaluators

The accreditation evaluation was initiated at the request of the program administrator to the State Board of Vocational, Technical, and Adult Education. Mr. _____, who is the Board project consultant, assembled the team of external consultants to serve on the Associate Degree Evaluation Committee for the Plastics Technology program.

Committee members were carefully selected so that they might provide a broad and unbiased perspective of the program by plastics industry and education representatives. The committee members included three persons from the plastics industry, one staff member from the state university, one administrator of instructional services from another Wisconsin VTAE district, and a member of the Wisconsin Board of Vocational, Technical and Adult Education.

The impact evaluation, which involved the mailing of survey questionnaires to program graduates, was conducted at the district level (Instructional Services); data were processed at the Board and released in the form of a computer printout sheet. Data for the program review study was gathered by school personnel members to be reviewed by representatives of the State Board, and district administrative and instructional staff.

Evaluation Funding

Evaluations are considered to be part of the program and their costs are absorbed by the program budget. The travel, room and board expenses of members of the Associate Degree Evaluation Committee for the Plastics Technology was paid by the District. Committee members' time costs were absorbed by their employers.

Evaluation Audiences

There were a variety of audiences of the evaluation of the Plastics Technology program. These consisted of staff members of the State Department of Technical, Vocational and Adult Education who were involved in establishing program accreditation, District 11 and school administrative and instructional staff members involved with the program, and student

enrollees who discussed the relative merits of the program with the committee members. Other persons in education observed the Plastics Technology evaluation as an evaluation learning experience. Also, the Plastics Technology Advisory Committee, a local program advisory committee comprised of people in the plastics industry, was a very concerned audience of the evaluations as was the State project consultant.

Expected Evaluation Outcomes and Benefits

Program accreditation was a major expected outcome of the process evaluation. In addition, it was anticipated that the committee would provide input for program improvement. It was also expected that the evaluations would help ascertain that the program effectively served the needs of industry and enrollees, and that it was making progress in meeting its goals.

Evaluation Descriptions

The evaluations conducted were identified in an earlier section of this report:

1. *Accreditation Evaluation.* This evaluation was conducted according to standardized procedures established by the State Board of Vocational, Technical and Adult Education. Following the request of the program administrator for an evaluation at the end of the program's second year, the State Board consultant assembled an appropriate committee to conduct the evaluation.

District and Institute staff members performed a self-study which was reported in a monograph forwarded to the Committee members for study. Following review of the materials, the Committee made a three-day site visit during which time it performed the evaluation. Committee members received briefing from State Board members concerning the evaluation and were provided with the *"Evaluation and Program survey Checklist,"* developed by the State Board.

In performing the evaluation, Committee members employed observational techniques and conducted interviews with the administration and instructional staff as well as with students, using the checklist as a guide. On its final report, the Committee provided four different levels of reaction: commendations, suggestions, recommendations, and condition of approval. Responses of the committee members were recorded on tape and the transcriptions formed the basis of the final evaluation document.

The Committee made many commendations, suggestions, and recommendations, relating to the major categories listed in the *"Evaluation and Program Survey Checklist:"* students, faculty, curriculum and instruction, facilities--equipment and supplies, local advisory committee, and leadership. Concerning students, the Committee observed that their attitudes were outstanding and that they were definitely motivated. The Committee expressed concern over the high attrition rate in the program (over 50 percent) and suggested that a follow-up study be conducted of those who had dropped out.

The Committee commended the work and effort of the instructors in establishing the program. Recommendations made concerning the technical faculty members were that they become more involved with industry and industrial practices, and that they participate more actively in professional organizations. Various recommendations were made concerning curriculum and instruction. It was recommended that learning objectives be established for all units and courses, that objectives be defined clearly, and that objectives be reviewed to ascertain that they were in line with realistic opportunities for student placement. It was recommended that emphasis be shifted in the economics and communications courses and that the supervision course be dropped from the curriculum. The Committee also recommended that the Institute provide extension courses in plastics technology or evening and summer courses.

Concerning instructional facilities, the Committee made recommendations for better safety practices, changes in space arrangements, and the purchase of additional equipment. It was also recommended that the local program advisory committee be enlarged to include a greater cross-section of those involved in various levels of activity in the plastic industry--top management, laboratory, and shop employees; and that the advisory committee consider the re-evaluation of the program in two years.

2. *Impact Evaluation.* Results of the follow-up survey of the 1972-73 Plastics Technology program graduates were reported on a computer printout sheet. It showed 100 percent return of the questionnaires for the eight graduates for that school year. Of these, five were employed full-time in an occupation related to their training and they received an average monthly rate of $602. Three respondents were employed in the district where they were trained, one was employed out of the district but in-state, and one was employed out-of-state. Two respondents obtained their job during training and the other three, after training. None of the unemployed respondents were seeking employment. The majority of the respondents reported that they felt the training was satisfactory.

3. *Program Review.* Although the *"Program Review and Development"* forms had been reported completed for the Plastics Technology program, they were not available at the time of the interview.

Technical Competence

The procedures used in the evaluations of the Plastics Technology program have been used operationally by the Wisconsin Board of Vocational, Technical and Adult Education since 1963. The evaluation measures used were appropriate to the questions raised in the evaluation and had observable content validity.

The *"Evaluation and Program Survey Checklist"* throughly identified variables the State Board considered important in establishing standards for accreditation and program improvement. Evaluation findings were subjective in that they relied upon expert judgments to determine that the program met accreditation standards and to identify discrepancies between actual and desirable program aspects.

The follow-up and program review studies provided statistical data which was amenable to further analysis and interpretation by reviewers. However, no formal evaluation document incorporated their findings. Further information concerning program effectiveness might have been sought from employers, employees, part-time students, and dropouts. It

is anticipated that future evaluations will cover these areas.

Accomplishment of Goals

The State Board of Vocational, Technical and Adult Education considered that to a great extent the goals of the evaluation had been accomplished. The program received accreditation and the team of experts provided many suggestions and recommendations for program improvement. Most of the administrative and instructional staff were pleased with the evaluation and found the suggestions and recommendations to be useful to them. The District Board, Advisory Committee, and attending students also expressed satisfaction with the evaluation.

Inasmuch as there were only eight graduates of the Plastic Technology program in 1972-73 and the follow-up was conducted only six months following graduation, it was not possible to objectively ascertain whether the program was providing the plastics industry with well-trained personnel.

Usefulness of Evaluation

The evaluation results were considered most useful by the administrative and instructional staff. The program was expanded to the evening sessions to include more courses in plastics for those who worked during the day. Some new machinery and equipment was obtained. The instructors became active in the professional plastic associations and did summer work in the plastics industry; more work was done on preparation of instructional material.

The evaluation also provided for follow-up. One of the evaluation suggestions was that the local Plastics Advisory Committee consider the re-evaluation of the program in two years. At the time of this interview the re-evaluation of the curriculum was being completed.

Unintended Outcomes

Concern for high attrition rate of student enrollees was expressed in the evaluation. It had been projected that a student enrollment of 80 FTEs was required to make the program "pay off." As noted previously, at the time of the interview, there were 36 FTEs in the program of whom 26 were full-time students and the others, part-time. The evaluation suggested that a follow-up study be conducted by the local administrative staff to determine what happened to the students who dropped and why they did so.

An hypothesis offered was that students may have been "work-outs" rather than dropouts. That is, they may have left the program to get a job in the plastics industry. Two of the five employed 1972-73 graduates reported that they became employed in the plastics industry while still attending school. The evaluation committee considered that the program could be used on a part-time basis for adults employed in the plastics

industry. They recommended that the program offer courses to accomodate part-timers. This was followed through with programs being offered in the evening session.

Positive Aspects of Evaluation

The involvement of many individuals reflecting different points of view in the evaluation was noteworthy. These included views of those in industry, education, State Board, administrative and instructional staff, and attending students. The evaluation gave the institution some assurance that they were on the "right track," placed renewed focus on the importance of instructional goals and objectives, and identified the need of specific facilities and equipment.

The evaluation involved local plastics industry people in curriculum planning. If helped assure the industry of the quality of education being offered, and through the evaluation team, identified potential employment possibilities for students and graduates.

Although, the opinion was offered that more time would have been helpful in performing the evaluation, the speed and organization with which the accreditation evaluation was accomplished was most impressive.

Evaluation Problems

Although the smooth organization made it possible to conduct the actual on-site evaluation in three days, additional time would have permitted the team to have been more thorough and to provide greater indepth evaluation. Also, use of a recorder in the evaluation presented various technical problems.

The self-study as presented in the *Monograph* was not organized as well as it might have been. It was considered that its effectiveness would have been increased had it been more complete concerning behavioral objectives, more concise, and had eliminated irrelevant sections.

Special Lessons To Be Learned

The most obvious lesson that can be learned from this evaluation is the contribution that evaluation can make in helping assure an effective training program. The involvement of industry staff members in the evaluation of a technical training program appears to be of major importance in accomplishing the program's goals.

Particularly noteworthy in the evaluation were the comprehensive program variables identified in the evaluation instruments which may be highly useful to other program developers, administrators, and instructors. The techniques used to orient the evaluation team also appear to be a highly effective approach in conducting such an evaluation.

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